

# BEYOND RURAL

## Montana State Rural Health Plan

July 2008

**Montana Department of Public Health & Human Services  
(DPHHS)**

Quality Assurance Division

P. O. Box 202953

2401 Colonial Drive

Helena, MT 59620-2953

[www.dphhs.mt.gov/qad](http://www.dphhs.mt.gov/qad)

# **Montana State Rural Health Plan (SRHP) Task Force**

**Casey Blumenthal, Vice President  
MHA...An Association of Montana  
Healthcare Providers  
Helena, Montana**

**Jeff Buska, Administrator  
Quality Assurance Division  
State of Montana Dept. of Public  
Health and Human Services  
Helena, Montana**

**Jim DeTienne, Supervisor  
Emergency Medical Services & Trauma  
Systems/State of Montana Dept. of  
Public Health and Human Services  
Helena, Montana**

**David Espeland, Chief Executive Officer  
Fallon Medical Complex  
Baker, Montana**

**Kristin Juliar, Director  
Montana Office of Rural Health  
Bozeman, Montana**

**Cody Langbehn, Director of Affiliate  
Operations/Billings Clinic  
Billings, Montana**

**Marge Levine, Data and Information  
Manager/Montana Primary Care  
Association  
Helena, Montana**

**Sara Medley, Chief Operating Officer  
Mountain-Pacific Quality Health  
Helena, Montana**

**Shane Roberts, Chief Executive Officer  
St. Luke Community Hospital  
Ronan, Montana**

**Nels Sanddal, President  
Critical Illness & Trauma Foundation  
Bozeman, Montana**

**John Schroeck, Supervisor  
Montana Primary Care Office  
Helena, Montana**

**Mike Walsh, Chief Executive Officer  
Powell County Medical Center  
Deer Lodge, Montana**

## **Staff Support**

**Kip Smith, Director/Montana Health  
Research & Education Foundation &  
Coordinator, Montana FLEX Grant  
Helena, Montana**

**Larry Putnam  
Eagle Healthcare Consulting  
Helena, Montana**

**Jennifer Wagner, Administrative  
Professional/MHA...An Association of  
Montana Health Care Providers  
Helena, Montana**

# **MONTANA STATE RURAL HEALTH PLAN**

## **TABLE OF CONTENTS**

	<u>Page</u>
<i>Title Page</i>	i
<i>List of Montana State Rural Health Plan (SRHP) Task Force Members</i>	ii
<i>Table of Contents</i>	iii
<i>List of Inserts—Maps and Tables</i>	iv
<i>List of Acronyms and Abbreviations</i>	v-vi
<i>Purpose of Montana’s State Rural Health Plan</i>	vii
<b>Geographic, Census and Economic Data</b>	<b>1-9</b>
Geography	1-2
Census	2-6
Economy	7-8
Meeting Montana’s Rural Healthcare Challenges	9
Montana’s Healthcare Economy	9
<b>Workforce, Workforce, Workforce</b>	<b>10-18</b>
Montana’s Rural Healthcare Organizations	10-12
Montana’s Healthcare Workforce Shortage	12
Health Professions Shortage and Underserved Areas—Most of Montana	12-14
National and Montana Workforce Shortage Trends	14
RNs, LPNs & CNAs	14-15
Other Healthcare Workers	15-16
The Three “Ps”—Pharmacists, Physician Assistants and Physical Therapists	16
Dentists and Physicians	16-17
Workforce, Workforce, Workforce-Looking To The Future Recommendations	18
<b>Access, Health Status and Quality</b>	<b>19-26</b>
Access Barriers	19
Health Status Indicators	20-23
Quality	24-25
Access, Health Status and Quality-Looking To The Future Recommendations	25
<b>Connection &amp; Integration: EMS, Technology and Networks</b>	<b>27-33</b>
EMS-Safety Net for Montana’s Rural Healthcare System	27-30
Telehealth	30-31
Information Technology	31
Networks	32
Connection & Integration: Looking To The Future Recommendations	33
<b>Footnotes</b>	<b>34-38</b>
<b>Additional References</b>	<b>39-40</b>
<b>DPHHS, MHREF and Author Descriptions</b>	<b>41</b>

## **MONTANA STATE RURAL HEALTH PLAN (SRHP)**

### **LIST OF INSERTS** **MAPS AND TABLES**

	<b><u>Page</u></b>
<u>Insert #1:</u> Map—Montana Overlaid On U.S. Map	2
<u>Insert #2:</u> Table—Urban, Rural and Frontier Definitions	3
<u>Insert #3:</u> Table—Montana’s 56 Urban, Rural & Frontier Counties—With Population Density	4
<u>Insert #4:</u> Map—2000 to 2030 Over 65 Projected Population Increases, By County	6
<u>Insert #5:</u> Table—Median Household Income, 2003-2006: ID, MT, ND, SD & WY	7
<u>Insert #6:</u> Table—All Ages Poverty Rates, 2004-2006: ID, MT, ND, SD & WY	7
<u>Insert #7:</u> Table—Percentage of People Without Health Insurance: ID, MT, ND, SD & WY	8
<u>Insert #8:</u> Map—Health Insurance Coverage Status for U.S. States	8
<u>Insert #9:</u> Map—Montana CAH & PPS Hospitals	10
<u>Insert #10:</u> Map—Location of Montana’s 47 Critical Access Hospitals	11
<u>Insert #11:</u> Table—Bed Capacity, Montana Healthcare Organizations	11
<u>Insert #12:</u> Map—Montana Primary Care Health Professions Shortage Areas (HPSA’s)	13
<u>Insert #13:</u> Map—Montana Mental Health Profession Shortage Areas	14
<u>Insert #14:</u> Table—RN, LPN & CNA Vacancy and Turnover Rates	15
<u>Insert #15:</u> Table—Montana’s Under-represented Healthcare Workers	16
<u>Insert #16:</u> Map—Montana Dental Health Professional Shortage Areas	17
<u>Insert #17:</u> Table—Montana Death Rates Compared To U.S. Death Rates, 2004	20
<u>Insert #18:</u> Map—Binge Drinking Rates—All U.S. States	21
<u>Insert #19:</u> Table—Five Key Health Indicators for Montana versus Healthy People 2010 Targets and U.S. Rates	22
<u>Insert #20:</u> Map—Smoking Rates—All U.S. States	22
<u>Insert #21:</u> Map—Diabetes Rates—All U.S. States	23
<u>Insert #22:</u> Table—5 Leading Causes of Death in Montana, 1999-2005	27
<u>Insert #23:</u> Chart—Types of EMS Incidents	27
<u>Insert #24:</u> Chart—9-1-1 Responses & EMT Workforce	28
<u>Insert #25:</u> Maps—Types of EMS Units in Montana	28
<u>Insert #26:</u> Charts—Proximity of Montana’s Population To EMS-Urban vs. Rural	29
<u>Insert #27:</u> Map & Chart—Proximity of Montana’s American Indian Population to EMS	29
<u>Insert #28:</u> Map—Montana’s Aeromedical Services	30

**MONTANA STATE RURAL HEALTH PLAN**  
**LIST OF ACRONYMS AND ABBREVIATIONS**  
*(Page 1 of 2)*

3R Network	Rural Recruitment & Retention Network
AHEC	Area Health Education Center
ALS	Advance Life Support
BLS	Basic Life Support
BRFSS	Behavioral Risk Factor Surveillance System data
CAH	Critical Access Hospital
CDC	Center for Disease Control
CEIC	State of Montana Department of Commerce/Census and Economic Information Center
CEO	Chief Executive Officer
CGME	Council on Graduate Medical Education
CHC	Community Health Center
CIT	Critical Illness & Trauma Foundation
CME	Continuing Medical Education
CNA	Certified Nursing Assistant
COTA	Certified Occupational Therapy Assistant
CPOE	Computerized Physician Order Entry
CR	Computed Radiography
D.C.	District of Columbia
Dental HPSA	Dental Health Professional Shortage Area
EHR	Electronic Health Record
EMS	Emergency Medical Services
EMTN	Eastern Montana Telemedicine Network
FORTH	Fiber Optic Rural TeleHealth network
FP	Family Practice or Family Practitioner (physician)
FQHC	Federally Qualified Health Center
HIEM	Health Information Exchange of Montana
HHS	U.S. Department of Health and Human Services
HPSA	Health Professions Shortage Area
HR	Human Resources
HRSA	U.S. Department of Health & Human Services/Health Resources and Services Administration
IHS	Indian Health Service
ILS	Intermediate Life Support
IOM	Institute of Medicine

## **LIST OF ACRONYMS AND ABBREVIATIONS**

(Page 2 of 2)

IT	Information Technology
LPN	Licensed Practical Nurse
MAF	Medical Assistance Facility
Mental HPSA	Mental Health Professional Shortage Area
MHA	MHA...An Association of Health Care Providers
MHN	Montana Health Network
MHREF	Montana Health Research & Education Foundation
MHTA	Montana Healthcare Telecommunications Alliance
MPCA	Montana Primary Care Association
MT DPHHS	Montana Department of Public Health & Human Services
MT	Montana
MUA	Medically Underserved Area
MVA	Motor Vehicle Accident
ND	North Dakota
NMHA	Northcentral Montana Healthcare Alliance
ORH	Office of Rural Health
PACS	Picture Archiving Communication System
PCO	Primary Care Office
PIN	Performance Improvement Network
PPS	Prospective Payment System
PT	Physical Therapist
PTA	Physical Therapy Assistant
QIO	Quality Improvement Organization
RHC	Rural Health Clinic
RN	Registered Nurse
ROSC	Rural Organizational Safety Culture survey
RTAC	Rural Trauma Advisory Councils (regional)
SD	South Dakota
SIOCC	Systems Improvement and Organizational Culture Change
SRHP	State Rural Health Plan
Tertiary Medical Center	A major hospital with a full complement of medical services including specialty & sub-specialty physicians plus diagnostic & treatment capabilities
WWAMI	Washington-Wyoming-Alaska-Montana-Idaho
WY	Wyoming

## *Purpose of Montana's State Rural Health Plan*

The purpose of this State Rural Health Plan (SRHP) is to guide Montana's Critical Access Hospital program and future Rural Hospital Flexibility Program (FLEX) grant expenditures. The plan was developed with input from a broad-based Montana State Rural Health Plan Task Force which met in person and by conference call from November 2007 to May 2008. In preparing this plan, the Task Force addressed specific federal FLEX grant guidance for the preparation of State Rural Health Plans and utilized existing data and information from a variety of state and national sources. The goal of Montana's State Rural Health Plan is to create a useful, practical guide for the future for Montana's Critical Access Hospitals that is fact-based and data-driven.

At the conclusion of the following focus areas of the Montana SRHP—Workforce, Workforce, Workforce (page 21); Access, Health Status and Quality (page 28) and EMS, Technology and Networks (page 34)—is a section entitled “Looking To The Future” which identifies suggestions for FLEX grant activities for the next 3-4 years. These “Looking To The Future” suggestions are not in any priority order. Also, these suggestions are not the only activities that will be incorporated into future FLEX grant activities nor is there any guarantee they will be included in future FLEX grant applications. However, Montana SRHP Task Force members identified them as potential strategies for addressing Montana's rural healthcare challenges.

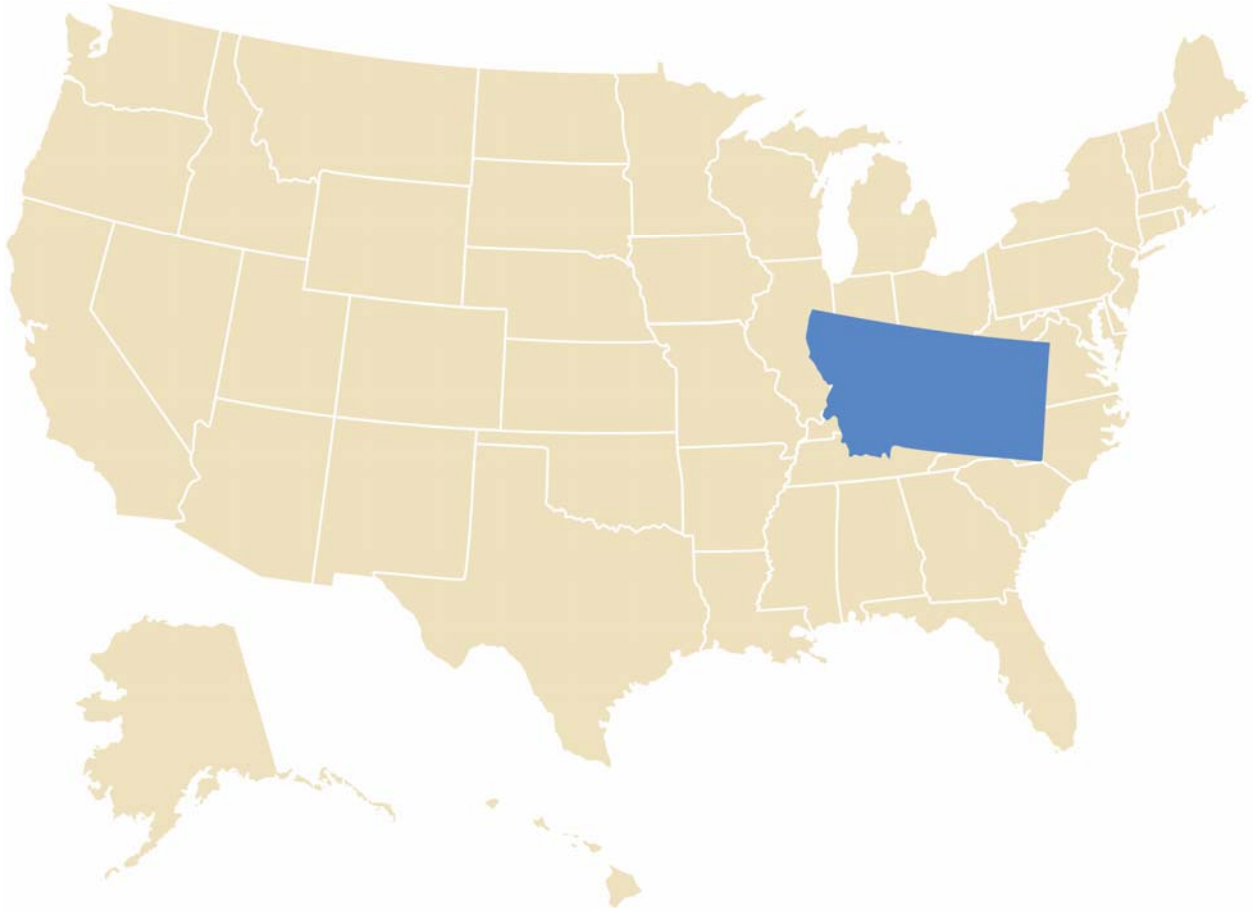
# Geographic, Census and Economic Data

## *Geography*

**M**ontana is a big state, 630 miles east to west and 255 miles north to south, containing 145,552 square miles. Montana's northern border is shared with three Canadian provinces (more than any other state) and is bordered to the east, south and west by the states of North Dakota, Wyoming and Idaho.<sup>1</sup> It would take 9 hours (without stopping) to drive across the state at 70 miles per hour on an Interstate highway, longer if traveling on one of Montana's many two-lane roads.

The following **Map/Insert #1** shows the State of Montana overlaid on a U.S. map. The map clearly shows Montana's large size taking up a good portion of the land mass in the eastern United States. The size of Montana from west to east is approximately the same distance as traveling from Chicago, IL to Washington, DC. In the same token the size of Montana from North to South would be the same distance as traveling from the Great Lakes to Tennessee.

### Insert #1: Montana Overlaid on a U.S. Map<sup>2</sup>



Although Montana is the fourth-largest state in physical size, it ranks 44<sup>th</sup> among all states in population with an estimated 957,861 residents in 2007.<sup>3</sup>

### *Census*

Because of its small population and large land mass, Montana has a population density of only 6.6 persons per square mile. This is the third lowest population density of any state, with only Wyoming and Alaska more thinly populated.<sup>4</sup>

The U.S. Department of Health & Human Services, Bureau of Primary Health Care defines counties with populations of 50 or more people per square mile as *urban*, fewer than 50 and more than 6 people per square mile as *rural* and 6 or fewer people per square mile as *frontier*.<sup>5</sup> These three definitions of population density are expressed in the following **Table/Insert #2:**

**Insert #2: Urban, Rural and Frontier Definitions**

<b>Definition</b>	<b>Minimum Persons Per Square Mile</b>	<b>Maximum Persons Per Square Mile</b>
<b>Urban</b>	More Than 50	None
<b>Rural</b>	More Than Six	Fewer Than 50
<b>Frontier</b>	None	Six or Fewer

Other states define *rural* populations differently. For example, Pennsylvania defines *rural* as a population density of less than 274 persons per square mile.<sup>6</sup> Arizona defines any county with a population of less than 400,000 as rural.<sup>7</sup>

Although the United States is an urbanized nation, with 80.6% of its population living in *urban* counties (using the U.S. Census definition), Montana is just the opposite with 85% of Montanans living in *rural* or *frontier* counties and only 15% in its one *urban* county.<sup>8</sup> Montana's overall population density of 6.6 persons per square mile is on the low end of the scale for the U.S. Census definition of a *rural* geographic area. The state taken as a whole is very close to meeting the population density definition for a *frontier* rural area.

Since Montana is a large state, it has a large number of counties—56. Yellowstone County is the only county in Montana classified as *urban* with an estimated 2006 population of 138,213 and a population density of 52 people per square mile.<sup>9</sup> It's interesting to note that Yellowstone County barely qualifies as an *urban* county with 52 persons per square mile since the *urban* threshold is 50 or more persons per square mile. In other words, a margin of only two people per square mile in Yellowstone County keeps every county in the state from being classified as rural or frontier. Of the remaining 55 Montana counties, 10 are classified as *rural* and 45 as *frontier*.

Montana's one urban county (Yellowstone) as well as its 45 frontier and 10 rural counties are listed in the **Table (Insert #3)** below along with population densities for each county:

**Insert #3**

**Montana's 56 Urban, Rural & Frontier Counties--With Population Density<sup>10</sup>**

<b><u>Urban</u></b>	<b><u>Persons Per Square Mile</u></b>	<b><u>Frontier (Continued)</u></b>	<b><u>Persons Per Square Mile</u></b>
Yellowstone	52.0	Teton	2.8
		Toole	2.8
<b><u>Rural</u></b>		Fergus	2.7
Silver Bow	46.6	Big Horn	2.6
Missoula	37.7	Musselshell	2.4
Cascade	29.5	Sheridan	2.3
Gallatin	27.3	Madison	1.9
Lake	18.1	Sweet Grass	1.9
Lewis & Clark	16.3	Rosebud	1.8
Ravalli	15.8	Granite	1.7
Flathead	15.2	Fallon	1.7
Deer Lodge	12.3	Beaverhead	1.6
Jefferson	6.3	Blaine	1.6
		Wheatland	1.5
<b><u>Frontier</u></b>		Valley	1.5
Park	5.7	Daniels	1.4
Hill	5.6	Choteau	1.4
Lincoln	5.2	Liberty	1.4
Carbon	4.7	Judith Basin	1.2
Stillwater	4.7	Wibaux	1.1
Roosevelt	4.4	Golden Valley	.9
Dawson	3.7	Treasure	.8
Glacier	4.4	Phillips	.8
Richland	4.4	Meagher	.8
Pondera	3.8	Prairie	.7
Sanders	3.8	McCone	.7
Broadwater	3.7	Powder River	.6
Mineral	3.1	Carter	.4
Custer	3.1	Garfield	.3
Powell	3.0	Petroleum	.3

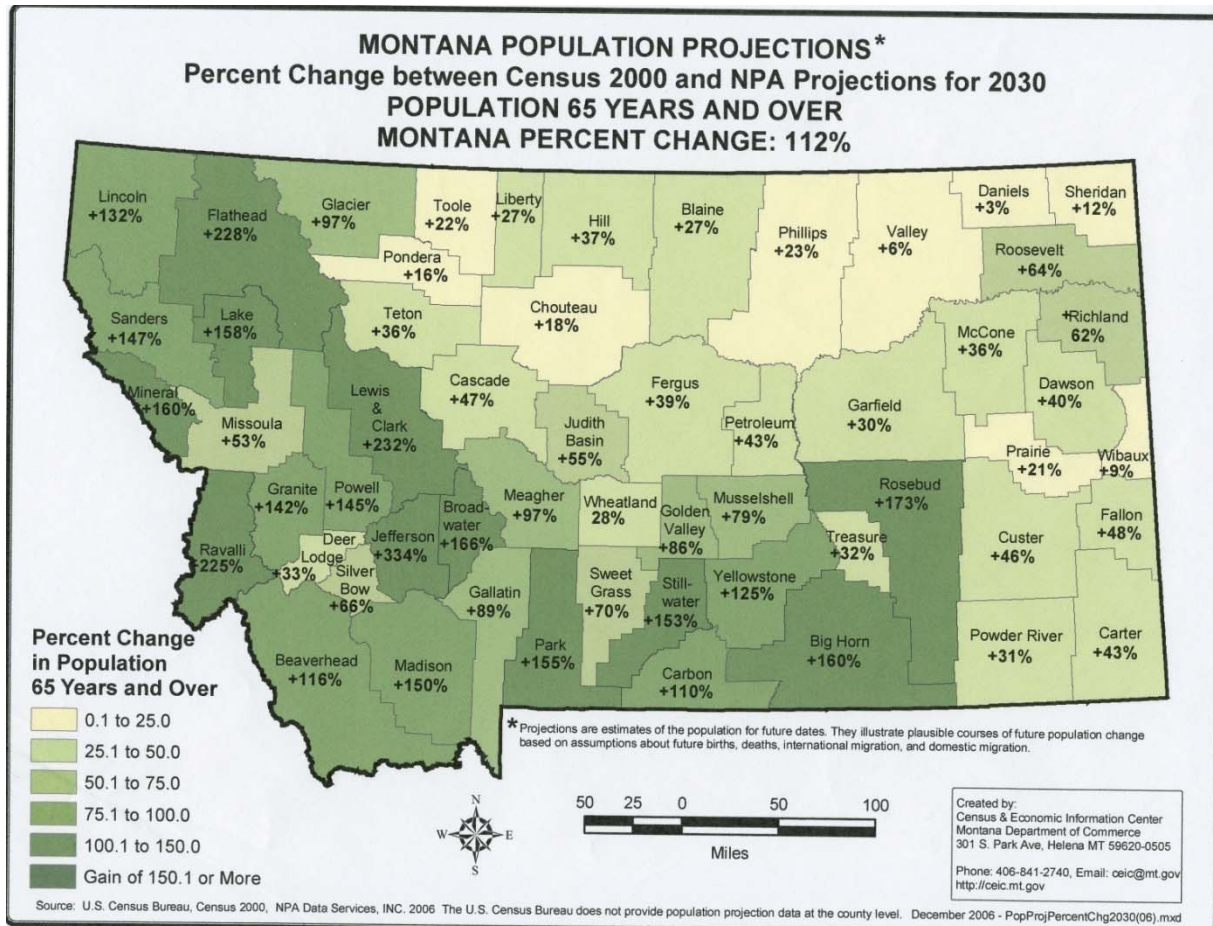
The Washington-Wyoming-Alaska-Montana-Idaho (WWAMI) Rural Health Research Center more fully describes *frontier* as a “subset of rural that has different health care delivery system... needs because they [small cities and towns] are remote from large cities and towns (e.g. most of Alaska and Montana). This rural health concept can be objectively defined (e.g., six or fewer persons per square mile for whole counties)....”<sup>11</sup>

The isolation, low population densities and long travel distances in Montana affect all aspects of our citizens’ lives, including healthcare. Montana is a *rural* state and, arguably “beyond rural”, verging on *frontier*. Taken as a whole and using the federal definition, Montana is a very rural state.

Looking to the future, of particular concern to healthcare decision and policy makers, is the significant aging of Montana’s citizens. Census projections from 2000 to 2030 predict an increase in the state’s population from 902,195 to 1,044,898, a 15.8% increase. However, the number of Montanans 44 and under are projected to decrease while those Montanans over age 44 (especially those 65 and older) are projected to increase in number. Median age is expected to increase from 37.5 years of age to 46.0 over this 30-year period and the number of Montanans over age 65 from 120,949 to 269,558, a startling jump of 148,609 or 122.9%. By 2030, those 65 and older will make up 25.8% of Montana’s population compared to 13.4% in 2000.<sup>12</sup>

Between 2000 and 2030, the 65 and over population in every Montana county is projected to increase, with one county’s increase estimated at 334%. The statewide increase in the over 65 population during this 30 year time period is 112%, or more than a doubling of this age group. See the following **Montana Map (Insert #4)** showing the percent change in the 65 and over population by county from 2000 to 2030:

Insert #4—Map of 2000-2030 Over 65 Projected Population Increases, By County<sup>13</sup>



By 2050, a quarter of all Americans will be older than 65.<sup>14</sup> However, by 2030--20 years before this happens in the U.S. as a whole--a quarter of all Montanans will be older than 65.<sup>15</sup> By 2025, Montana will be the 3rd-most-aged state in the nation. And people older than 65 have three times the doctor appointments and twice as many hospital admissions as people under 65.<sup>16</sup>

## Economy

Although Montana's median household income is headed in the right direction—it increased from \$36,200 to \$38,629 from 2003 to 2006, an increase of 6.7%, 4<sup>th</sup> highest increase in the nation during that period—it still ranks 44<sup>th</sup> among all states.<sup>17</sup> Also, Montana's median household income ranks lowest among 4 neighboring states--see the **Table (Insert #5)** below:

### Insert #5

#### Median Household Income, 2003-2006<sup>18</sup>

#### Idaho, Montana, North & South Dakota & Wyoming

State	2003-2005	Rank	2004-2006	Rank	% Change
Idaho	\$44,994	26	\$46,395	28	3.1%
<b>Montana</b>	<b>\$36,200</b>	<b>47</b>	<b>\$38,629</b>	<b>44</b>	<b>6.7%</b>
North Dakota	\$41,869	38	\$42,162	38	0.7%
South Dakota	\$42,525	34	\$44,624	34	4.9%
Wyoming	\$45,598	24	\$47,227	24	3.6%

Likewise, although Montana's poverty rate has decreased in recent years (see the **Table—Insert #6**), it's still above the national average and higher than surrounding states.

### Insert #6

#### All Ages Poverty Rate, 2004-2006<sup>19</sup>

#### Idaho, Montana, North & South Dakota & Wyoming

State	2004	Rank	2005	Rank	2006	Rank
Idaho	9.9%	13	9.9%	12	9.5%	13
<b>Montana</b>	<b>14.1%</b>	<b>37</b>	<b>13.8%</b>	<b>36</b>	<b>13.5%</b>	<b>37</b>
North Dakota	9.7%	11	11.2%	20	11.4%	28
South Dakota	13.4%	36	11.8%	26	10.7%	24
Wyoming	9.9%	15	10.6%	17	10.0%	16
<i>United States</i>	13%	---	12.6%	---	12.3%	---

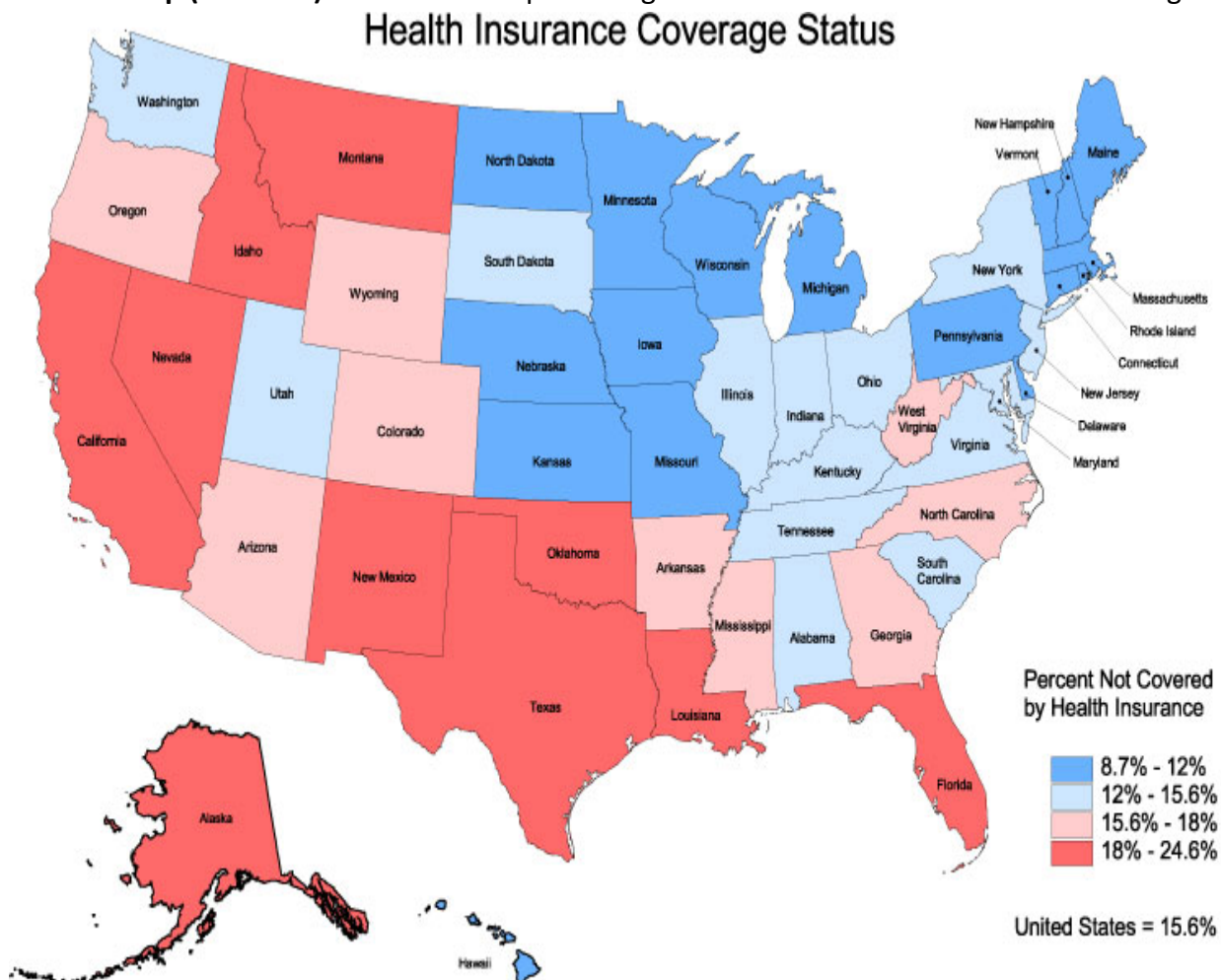
Because most Montana businesses employ 10 or fewer people and 60% of Montana businesses of this size cannot afford to offer health insurance to employees, Montana's population has a high rate (17.1%) of people without health insurance coverage. One Montana economist estimates 19% of Montanan's overall and 22% of people under the age of 65 are without health

insurance—approximately one-fifth of the state’s residents.<sup>20</sup> Again, this is above the national average and higher than surrounding states. See the **Table (Insert #7) below** for details:

**Insert #7: Percentage of People Without Health Insurance and State Rankings**  
**Idaho, Montana, North & South Dakota & Wyoming<sup>21</sup>**

State	2004	2005	2006	Rank
Idaho	14.5%	14.8%	15.4%	21
<b>Montana</b>	<b>15.1%</b>	<b>15.0%</b>	<b>17.1%</b>	<b>16</b>
North Dakota	10.1%	11.0%	12.2%	33
South Dakota	11.2%	11.7%	11.8%	36
Wyoming	12.8%	14.6%	14.6%	23
<i>United States</i>	14.9%	15.3%	15.8%	----

Also see **Map (Insert #8) below** for a map showing U.S. states and health insurance coverage status:<sup>22</sup>



Source: U.S. Census Bureau, Current Population Survey, 2004 Annual Social and Economic Supplement.

Note: Alaska and Hawaii are not to scale.



## Meeting Montana's Rural Healthcare Challenges

Montana has a long history of innovating and finding creative solutions to its rural healthcare challenges. Twenty years ago, in response to the challenge of rural Montana healthcare facilities facing closure and rural Montanans losing access to medical care, the idea of a Medical Assistance Facility (MAF) was born.<sup>23</sup> MAF's were the model for the federal Critical Access Hospital (CAH) program. Montana invented the CAH model, which has spread to 47 hospitals in the state and 1,283 across the U.S.

Looking forward to the next twenty years (when Montana's over-65 population will approach 25% of the population and need 3-5 times more healthcare services than its younger residents), new ideas and strategies are emerging to deal with the state's rural healthcare challenges of today.

Rural Montana (which is essentially the entire state) faces a number of unique healthcare challenges---a large, thinly populated state; high uninsured rates and a rapidly increasing over-65 population needing 3-5 times more healthcare services than younger Montanans.

## Montana's Healthcare Economy

Taken as a whole (Ambulatory Health Care Services, Hospitals and Nursing Residential Care Facilities), the Montana healthcare industry is the largest employer in the state, employing 45,469 people. Using carefully researched "multipliers" for each subsector of the Montana healthcare economy, one Montana economist estimates an additional 29,777 jobs in other businesses have been created by the healthcare industry. In other words, the healthcare industry is responsible for creating 75,246 Montana jobs, or nearly 18% of the state's total work force.<sup>24</sup>

Also, healthcare employment is expected to grow 29.7% between 2002 and 2012, twice the employment growth rate for the state as a whole. So, if this employment growth projection pans out, healthcare jobs as a percentage of all Montana jobs will increase even more.<sup>25</sup>

# Workforce, Workforce, Workforce

## Montana's Rural Healthcare Organizations

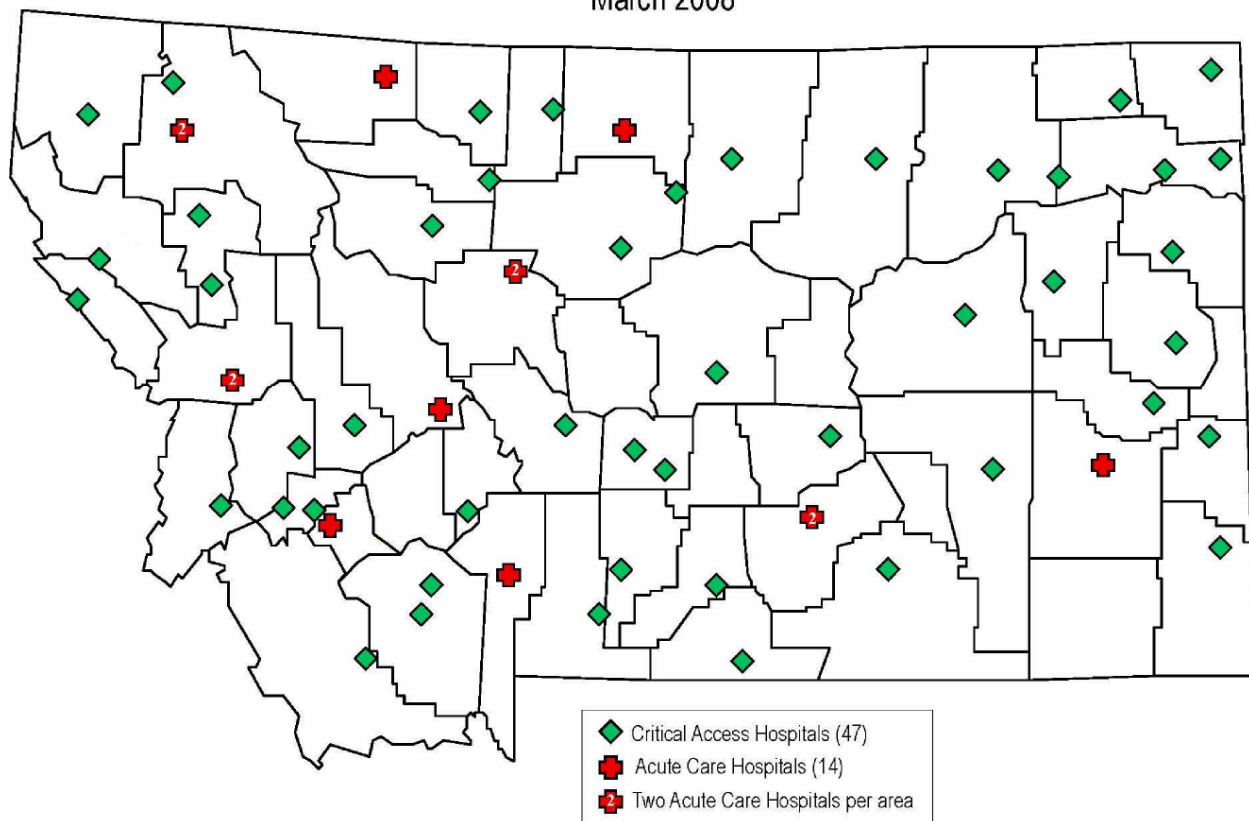
Only two of Montana's 61 hospitals are located in the one county with an urban population density. The other 59 hospitals are located in counties with rural or frontier populations. 47 of the 61 Montana hospitals are Critical Access Hospitals with 25 beds or less. Even at the two hospitals located in the urban county, over half the inpatient admissions are from counties with rural or frontier population densities.<sup>26</sup> There are seven Montana counties without a hospital.<sup>27</sup>

See the **Map (Insert #9) below** showing the location of Montana's hospitals including its 47 Critical Access Hospitals:

### Insert #9: Montana's Hospitals<sup>28</sup>

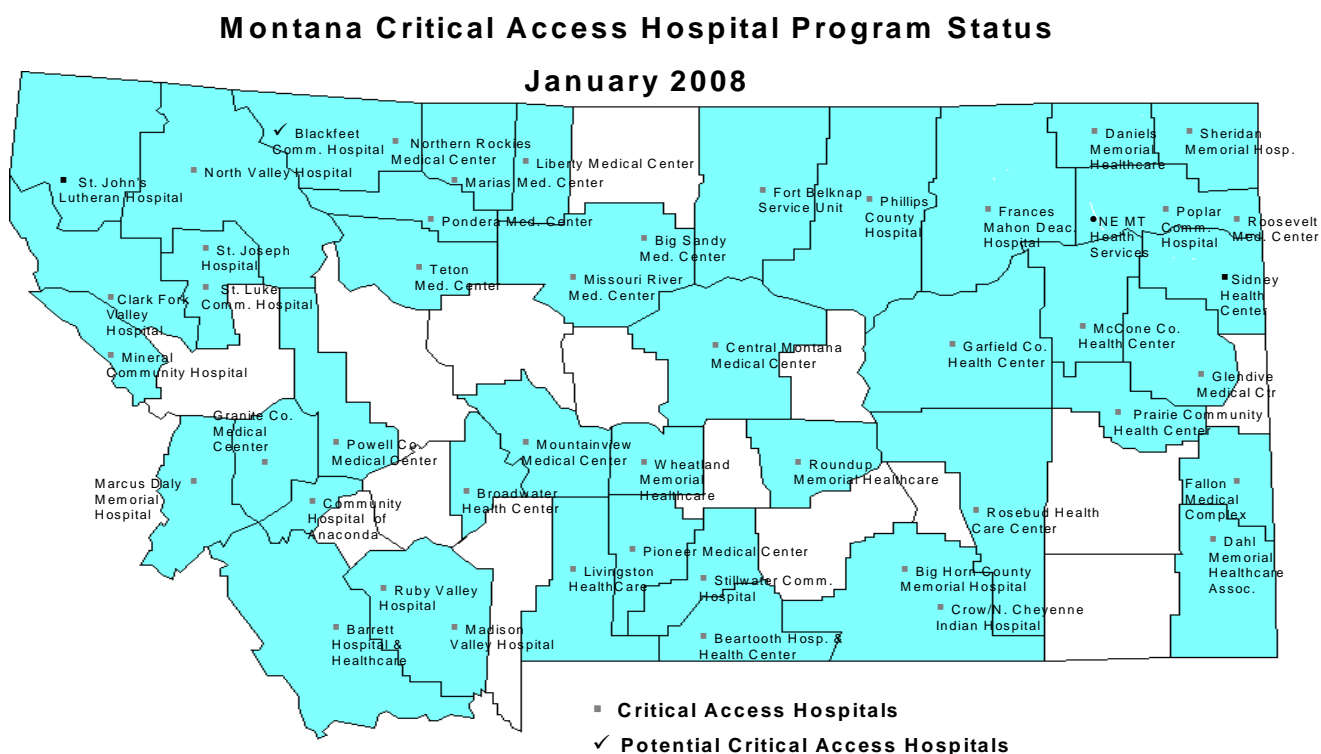
#### Montana CAH and PPS Hospitals

March 2008



See the **Map (Insert #10)** below showing only Montana's 47 Critical Access Hospitals:

### Insert #10: Location of Montana's 47 Critical Access Hospitals<sup>29</sup>



There are 40 Rural Health Clinics, 23 Community Health Center locations and 14 Tribal Health Facilities as well as 100 nursing homes and 174 assisted living facilities in the state.<sup>30</sup>

See **Table (Insert #11)** below for the bed capacity at Montana's hospitals, nursing homes and assisted living facilities:

### Insert #11

#### Bed Capacity—Montana Healthcare Organizations<sup>31</sup>

	Number of Beds
Hospitals	2,720
Nursing Homes	7,374
Assisted Living Facilities	3,597

Because of its large geographic size and small population, Montana has 4.3 hospital beds per 1,000 people, ranking near the high end (47<sup>th</sup> out of 51) in beds-per-1,000-population compared

to the 50 states and District of Columbia.<sup>32</sup> However, Montana ranks low (19<sup>th</sup> out of 51) with 113 hospital admissions per 1,000 people.<sup>33</sup>

There are 2,720 hospital beds in Montana compared to 61,691 hospitals beds in New York. New York's largest hospital—New York Presbyterian Hospital—has 2,225 beds, nearly as many beds as all hospitals in Montana.<sup>34</sup>

Montana ranks on the low end (40<sup>th</sup> out of 51) in the number of nursing homes<sup>35</sup> in the state (again, because of its small population) and 44<sup>th</sup> out of 51 in the number of nursing home residents.<sup>36</sup>

Although Montana has 76 home health agencies statewide, home health services are not available in eight of Montana's 56 counties.<sup>37</sup>

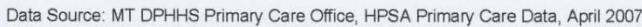
### Montana's Healthcare Workforce Shortage

All of Montana's rural healthcare organizations—whether a community health center, rural health clinic, sole community hospital, Critical Access Hospital, nursing home, assisted living facility or home health agency—face a shortage of healthcare professionals and workers.

A CEO at one Montana CAH recently reported the hospital spent approximately \$500,000 on salaries and \$100,000 on travel (the equivalent of 8 FTE's plus benefits) for temporary agency nursing staff during the past year.<sup>38</sup>

### Health Professions Shortage and Underserved Areas—Most of Montana

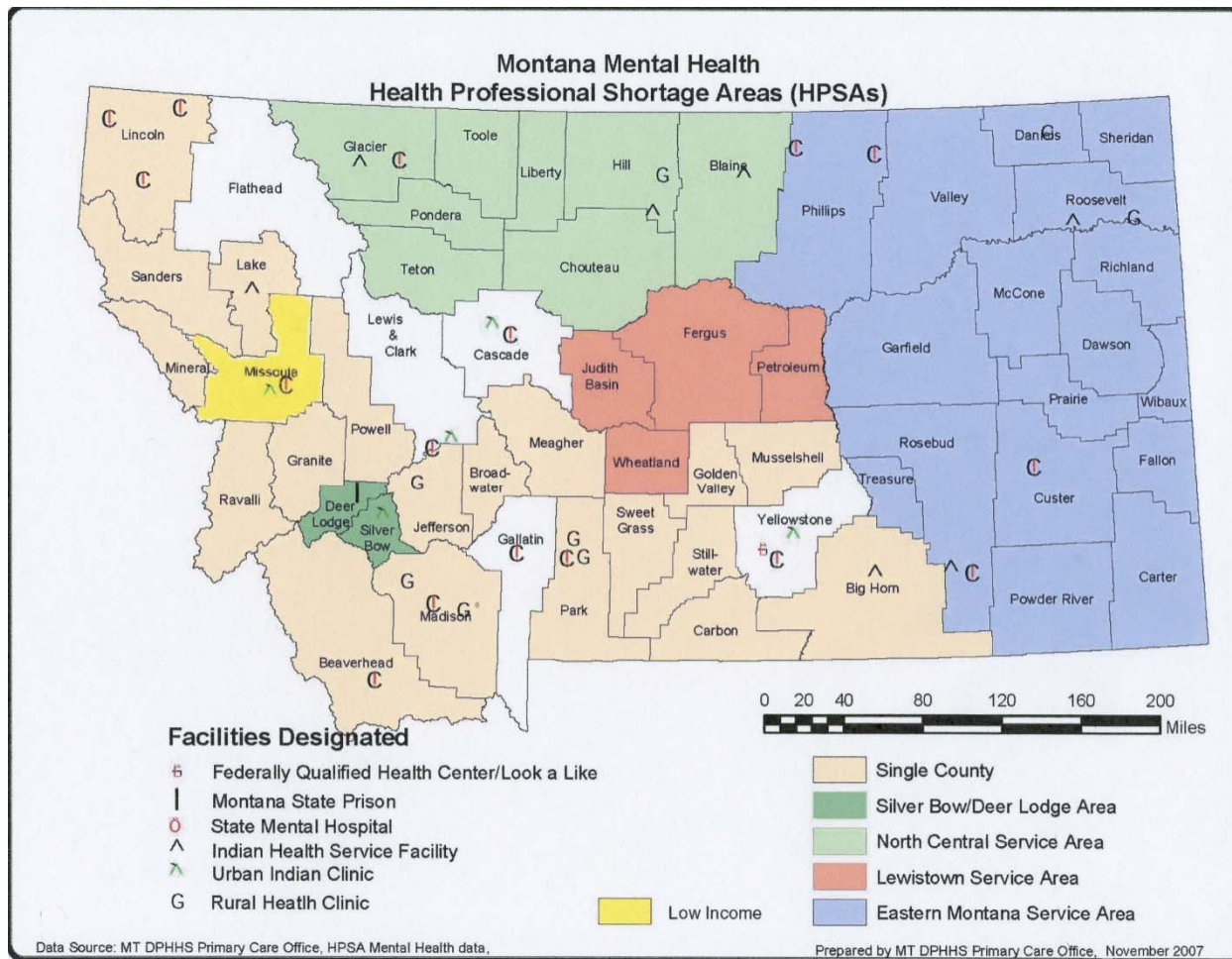
48 of Montana's 55 rural and frontier counties are completely or partially designated as Primary Care Health Professions Shortage Areas (HPSA's)—see the following **Montana Map of Primary Care HPSA's (Insert #12)**. Likewise, 48 of 55 Montana rural and frontier counties are completely or partially designated as Medically Underserved Areas/Medically Underserved Populations. 35 of Montana's 55 rural or frontier counties are designated as Dental HPSA's (**see the Montana Map of Dental HPSA's, Insert #16, page 17**).



Prepared by MT DPHHS Primary Care Office, Nov 2007

13

## Insert #13: Map of Montana Mental Health Professional Shortage Areas<sup>42</sup>



## National and Montana Healthcare Workforce Shortage Trends

As in other states, Montana's "healthcare industry is in the middle of a full-blown workforce crisis...."<sup>43</sup> Overall, Montana's healthcare occupations are projected to grow 28% between 2002 and 2012.<sup>44</sup> Demand is high (and getting higher) because of Montana's rapidly aging population and healthcare workers are in short supply.

### *RNs, LPNs & CNAs*

By 2020, Montana is projected to have a shortage of 2,188 RNs (8,731 RN positions with only 6,543 RNs available to fill those positions).<sup>45</sup>

Montana's RN shortage mirrors the national trend. Currently, there are 126,000 vacant RN positions in the U.S. One million new RNs will be needed across the nation by 2012. While a

40% increase in demand for RNs is anticipated from 2000 to 2020, only a 6% increase in supply is projected. Shortages of 12%, 20% and 29% are expected in the U.S. by 2010, 2015 and 2020. Fueling this RN shortfall is the aging of the RN workforce. 40% of the RN workforce will be over 50 by 2010 and looking toward retirement with only 9% of RNs under 30 in the workforce in 2000.<sup>46</sup>

In its 2007 “Workforce Staffing Survey”, MHA...An Association of Montana Healthcare Providers, reported the following vacancy and turnover rates (**see the Table—Insert #14**) for RNs, Licensed Practical Nurses (LPNs) and Certified Nursing Assistants (CNAs) at a sampling of Montana’s hospitals and nursing homes:

**Insert #14: RN, LPN and CNA Vacancy and Turnover Rates<sup>47</sup>**

<u><b>Occupation</b></u>	<u><b>Vacancy Rate</b></u>	<u><b>Turnover</b></u>
RN	5.8%	13.1%
LPN	7.5%	21.1%
CNA	8.3%	32.3%

Montana’s LPN and CNA vacancy rates may worsen in the years ahead. Because of the aging Baby Boom population and its increasing need for long-term care workers, the need for LPNs and CNAs is expected to explode across the U.S. From 2003 to 2010, the need for long-term care workers will increase by 45% or 800,000 workers. LPN job growth is projected at 20.2% or an additional 142,000 jobs by 2010. And the total number of direct-care workers needed in long-term care settings by 2050 is a staggering 5.7 million to 6.6 million, a 200% to 242% increase compared to the current (2003) long-term care work force.<sup>48</sup>

### ***Other Healthcare Workers***

The following healthcare workers have been identified as under-represented (less than 1.0) in Montana in comparison to the national average, **see the following Table (Insert #15)**. It’s important to note that a national average of 1.0 does not mean an adequate supply of healthcare workers. For example, there is a nationwide shortage of RNs and Montana is also experiencing a shortage of RNs even though Montana meets the national average for RNs.

#### **Insert #15: Montana's Under-represented Healthcare Workers<sup>49</sup>**

<b><u>Healthcare Worker</u></b>	<b><u>1.0=National Average</u></b>
Medical Assistants	.58
Physical Therapy Assistants	.65
Lab Technicians	.71
Certified Occupational Therapy Assistants	.86
Dental Assistants	.94
Diagnostic Medical Sonographers	.94
Pharmacy Technicians	.95
Home Health Aides	.97
RNs	1.0

Source: "Healthcare Workforce Demand In Montana: A Report by the Montana Healthcare Workforce Advisory Committee". Montana Office of Rural Health/Area Health Education Center. May 8, 2007

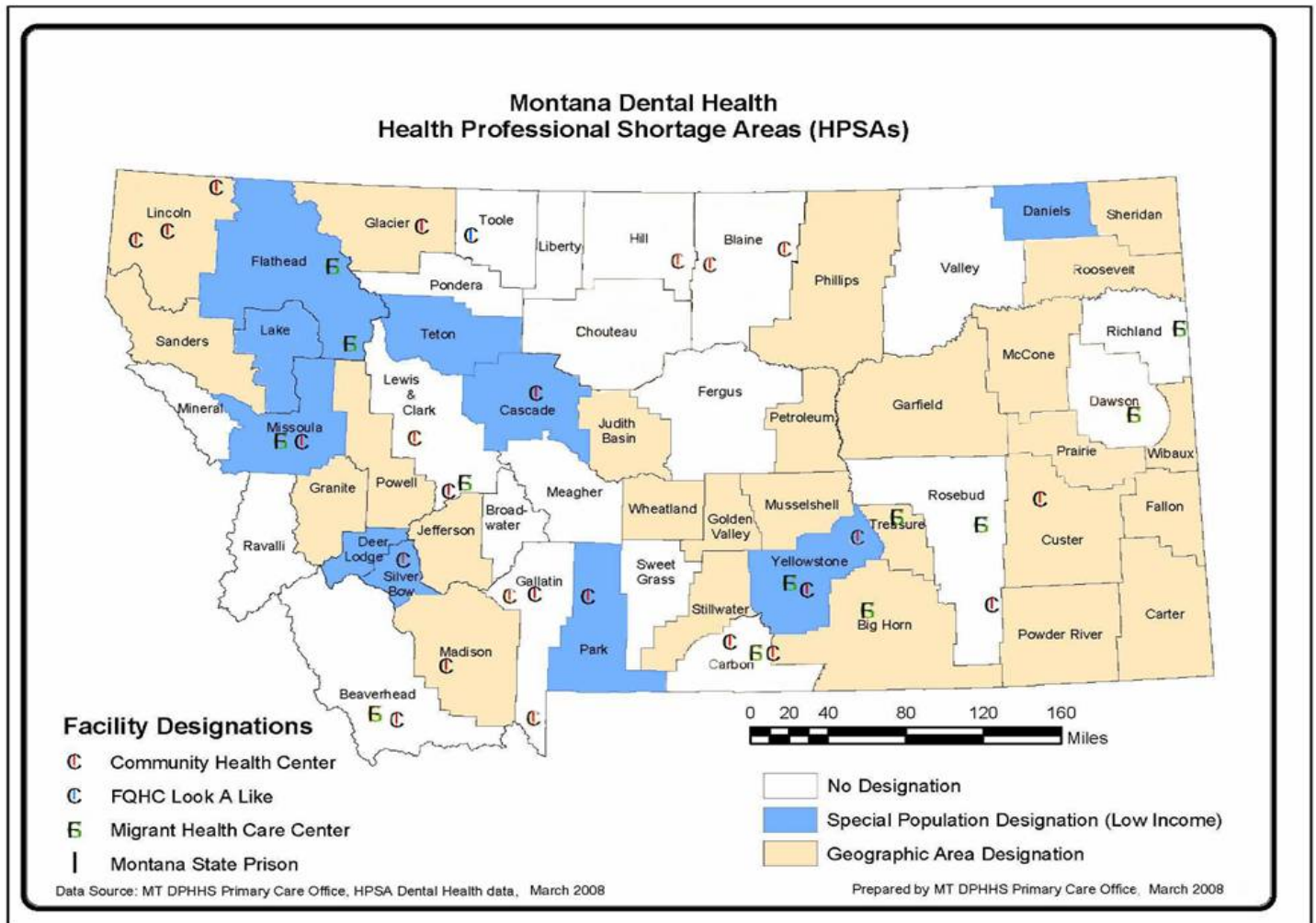
#### ***The Three "P's"—Pharmacists, Physician Assistants and Physical Therapists***

Increasing demand for pharmacists and physician assistants in Montana is anticipated at 41% and 52% during the ten-year period 2002-2012. And the need for physical therapists (PT's) will increase 55%, with the number of jobs escalating from 2,341 to 3,636 by 2012.<sup>50</sup>

Nationally, the number of pharmacists is only expected to grow 14.5% from 196,000 to 224,500 from 2000 to 2010, which will not come close to keeping pace with escalating demand, both nationally and in Montana.<sup>51</sup>

#### ***Dentists and Physicians***

Montana has a dentist to population ratio of 51.5 per 100,000, less than the national average of 63.6 per 100,000. Also, Montana dentists are older than the national average portending a severe shortage of dentists in coming years.<sup>52</sup> In 2007, 35 of Montana's 55 rural and frontier counties are already designated as Dental Health HPSA's (**see the following Map—Insert #16**):



Last, but certainly not least, Montana has fewer physicians compared to the national average. Overall, Montana had 223 physicians per 100,000 population compared to 266 physicians per 100,000 people for the nation as a whole in 2005. In 2004, there were 881 primary care physicians in the state and 612 mid-level practitioners.<sup>54</sup>

Nationally, the federal Health Resources and Services Administration (HRSA) anticipates a shortfall of between 51,000 and 228,000 physicians by 2020. The Council on Graduate Medical Education predicts a shortage of 85,000 doctors by the same year (2020). Also, physicians choosing Family Practice (FP) residencies declined 40% between 1997 and 2003, signaling a decrease in the supply of FPs, who are needed in rural states like Montana.<sup>55</sup>

## Workforce, Workforce, Workforce--Looking To The Future Recommendations

- Identify CAH best practices for retaining and recruiting physicians, mid-level providers (nurse practitioners and physician assistants) and other employees. Distribute best practice information and examples to CAH administration and HR staff (if the CAH has HR staff).
- Consider completion of a statewide and continuous ongoing assessment of all CAH staff to identify educational needs, specifically programming and topics. Continue successful Champions for Quality and billing/coding education programs. Expand CAH-employee educational offerings for staff at all levels. Leverage telehealth and webinar technologies in the delivery of educational programs and share their experiences with other hospitals.
- Consider expanding CAH partnerships with Montana's higher education programs, specifically student intern programs, with a goal of hiring hard-to-recruit student interns. Examples of hard-to-recruit student interns are pharmacists, physical therapists, imaging and lab technologists and OR Techs (there may be others). Identify CAHs that participate in student intern and preceptor programs.
- Pursue collaborative funding arrangements with Montana's ORH and newly reconstituted AHECs to identify and track workforce needs and the status of recruitment efforts through the use of relational data base software. Consider funding educational efforts for Montana CAHs on accessing and using the reinvigorated Montana Recruitment and Retention Network in combination with the national 3R Network.
- Keep CAHs informed on the impact of HPSA and MUA designations and their recruiting efforts. Encourage CAHs to work with the Montana Primary Care Office to update facility and geographic area designations.
- Promote and encourage shared staffing arrangements between CAHs and networks of CAHs with a goal of reducing expenses.

## Access, Health Status and Quality

### Access Barriers

One Montana Critical Access Hospital CEO always began medical provider recruiting conversations with, “Our town is 70 miles from the nearest McDonald’s, 90 miles from the nearest WalMart and 200 miles from the nearest shopping center. Can you handle that?”<sup>56</sup> This description of an isolated Montana community is not unusual. A former Montana U.S. Senator put it this way, “There’s a lot of dirt between light bulbs in Montana.”<sup>57</sup> Geographic isolation and the long distance between towns and healthcare organizations are often barriers to healthcare access in Montana.

54% of Montanans travel more than 5 miles (one way) to get to a doctor’s office; 13% travel more than 30 miles; 7% travel more than 50 miles.<sup>58</sup>

With little or no public transportation available in many of Montana’s isolated, rural communities, access to local primary care as well as out-of-town specialty medical services can be a problem.

Nearly 96% of Montanans drive themselves or get a ride from a friend when traveling to a doctor’s office; fewer than 1% use public transportation (probably because public transportation is found primarily in urban areas and most of Montana is frontier or rural).<sup>59</sup>

Not enough healthcare professionals and workers in rural Montana is also a limiting factor in accessing healthcare.

And Montana’s lower-than-the-national-average median income adversely affects the ability of many Montanans to pay for medical care. This is reflected in the 19.1% of Montana’s population (nearly 180,000 people) without health insurance.<sup>60</sup>

In a 2003 survey, 12.9% of Montana’s adults reported they could not see a doctor in the previous 12 months because of the cost. Examining the survey a little closer, over a quarter (26.3%) of all Montana adults ages 18-64 with a disability—a population that probably needs to see a doctor regularly—had not seen a doctor in the previous 12 months because of cost. Also, over one-quarter (26.7%) of Montanans do not have a personal doctor or health care provider.<sup>61</sup>

## Health Status Indicators

In 2004, Montana's death rates for 5 of 10 causes of death listed below were higher than the overall U.S. rates (see Table—Insert #17) below:

**Insert #17: Montana Death Rates Compared to U.S. Death Rates, 2004<sup>62</sup>**

<u>Cause of Death</u>	<u>Montana</u>	<u>U.S.</u>
Heart Disease	174*	217
Cancer	185*	190
Cerebrovascular Disease	46*	50
Alzheimer's Disease	21*	22
Pneumonia/Influenza	18*	20
Chronic Lower Respiratory Disease	62	42
Motor Vehicle Accidents	27	15
Diabetes	27	25
Suicide	19	11
Injury Due To Firearms	13	10

Death rates per 100,000 population. Rates lower than the national average are marked with an asterisk (\*). All others are above the national average.

Perhaps contributing to Montana's 185-per-100,000-people cancer death rate is the low percentage of Montana's adults that have never had a flexible sigmoidoscopy or colonoscopy. Fewer than half of Montana's adults age 50-64 have had this procedure and one-third of adults over the age of 65 have never had either diagnostic procedure.<sup>63</sup>

The 2004 Motor Vehicle Death Rate per 1,000 in Montana was 27 compared to 15 per 100,000 in the U.S. and 9.8% of all Montana motor vehicle crashes involved alcohol. Contributing to these high rates are higher-than-U.S.-average percentages of Montana adults participating in drinking and driving and binge drinking. In 2004, 3% of Montana adults reported drinking and driving in the previous 30 days. In 2004, 19% of Montana adults reported binge drinking during the previous six months. These behavioral risk factors impact the state's EMS system requirements for staffing ambulance services and training EMT's.<sup>64</sup>

The Healthy People 2010 target for binge drinking is less than 14%.<sup>65</sup> See U.S. Map—Insert #18 below for a comparison of state binge drinking rates:

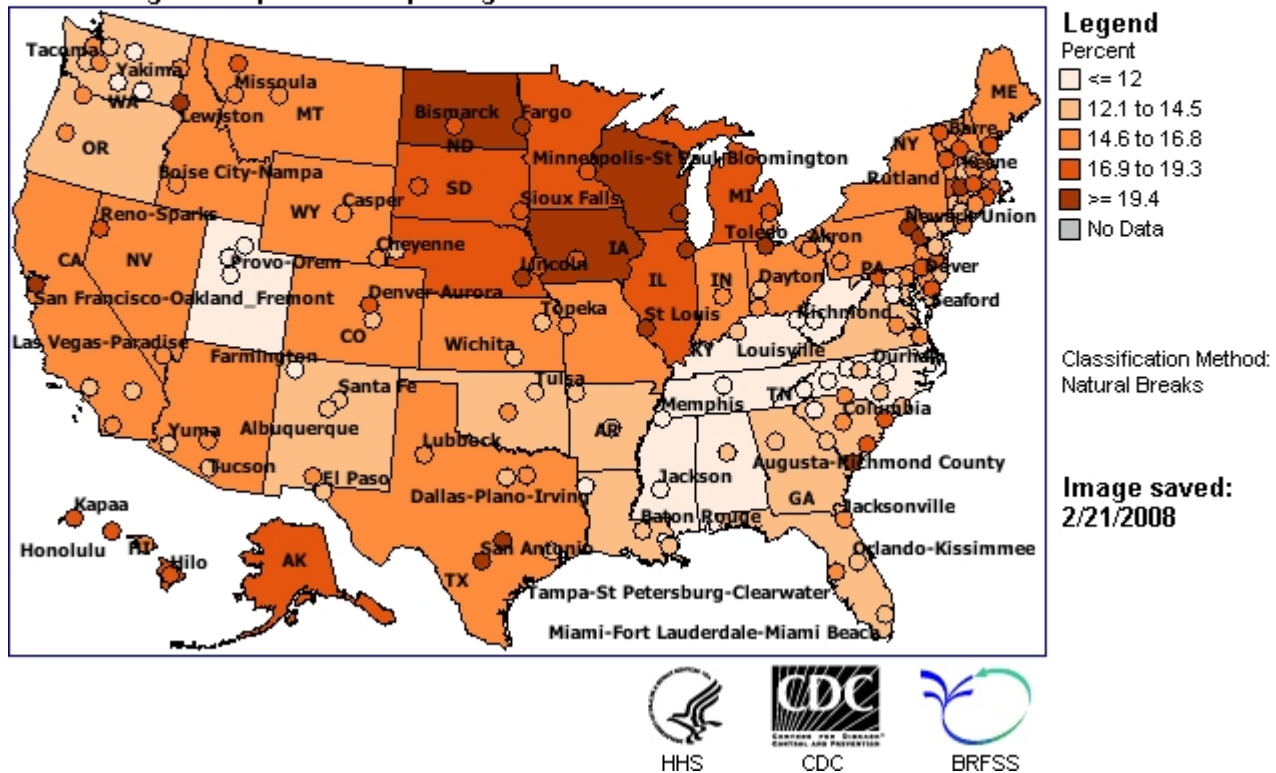
Insert #18: Map--Binge Drinking Rates—All U.S. States<sup>66</sup>

## BRFSS Maps

Year - 2006

Binge drinkers (males having five or more drinks on one occasion, females having four or more drinks on one occasion)

Percentage of respondents reporting Yes



Montana ranks favorably compared to national averages but unfavorably compared to Healthy People 2010 targets on five key health indicators—high blood pressure, obese adults, high cholesterol, diabetes and smoking—see Table—Insert #19 below for a comparison of Montana and U.S. rates. Also, see two Maps—Insert #20 and Insert #21 below for U.S. maps showing comparisons of the percentage of smokers and people with diabetes for all states, including Montana:

# Insert #19: Five Key Health Indicators for Montana versus Healthy People 2010<sup>67</sup>

## Targets and U.S. Rates

<u>Health Indicator</u>	<u>Montana</u>	<u>Healthy People 2010</u> <u>Target</u>	<u>U.S. Rate</u> <u>(actual)</u>
Blood Pressure	21%	16%	25.5
Obesity	19%	15%	31%
High Cholesterol	33.4%	17%	35.6%
Diabetes	55 per 1,000 (or 5.5%)	25 per 1,000 (or 2.5%)	55 per 1,000 (or 5.5%)
Smoking	20%	12%	22.1%

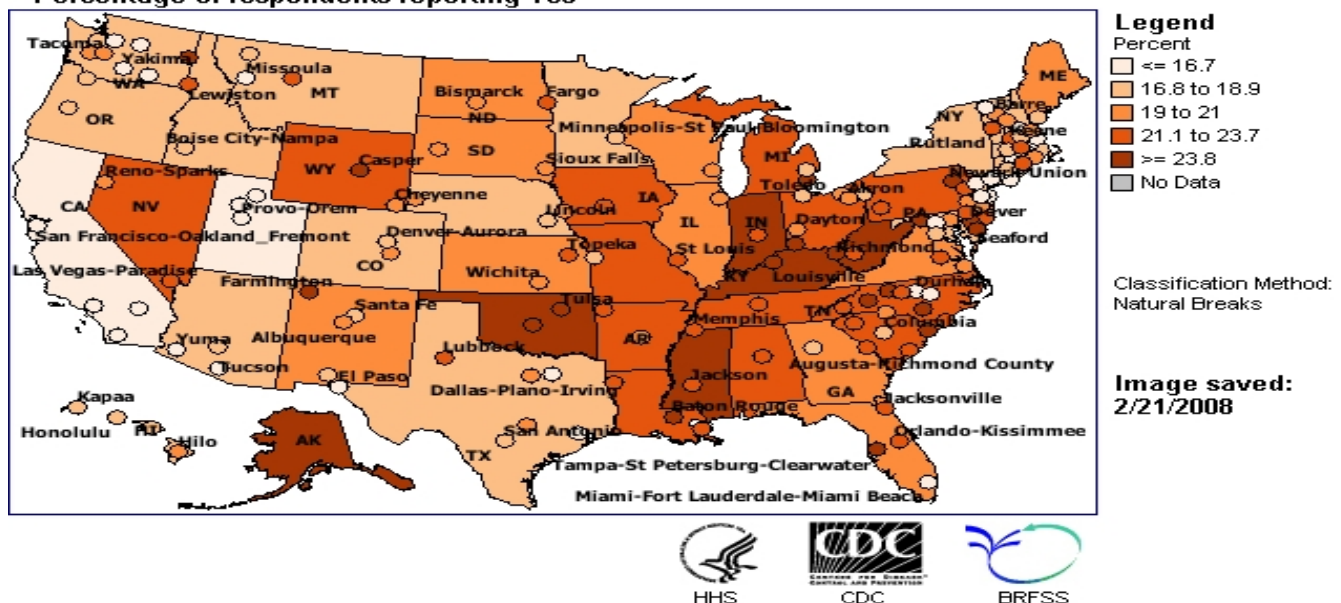
## Insert #20: Map—Smoking Rates—All U.S. States<sup>68</sup>

### BRFSS Maps

Year - 2006

Adults who are current smokers

Percentage of respondents reporting Yes



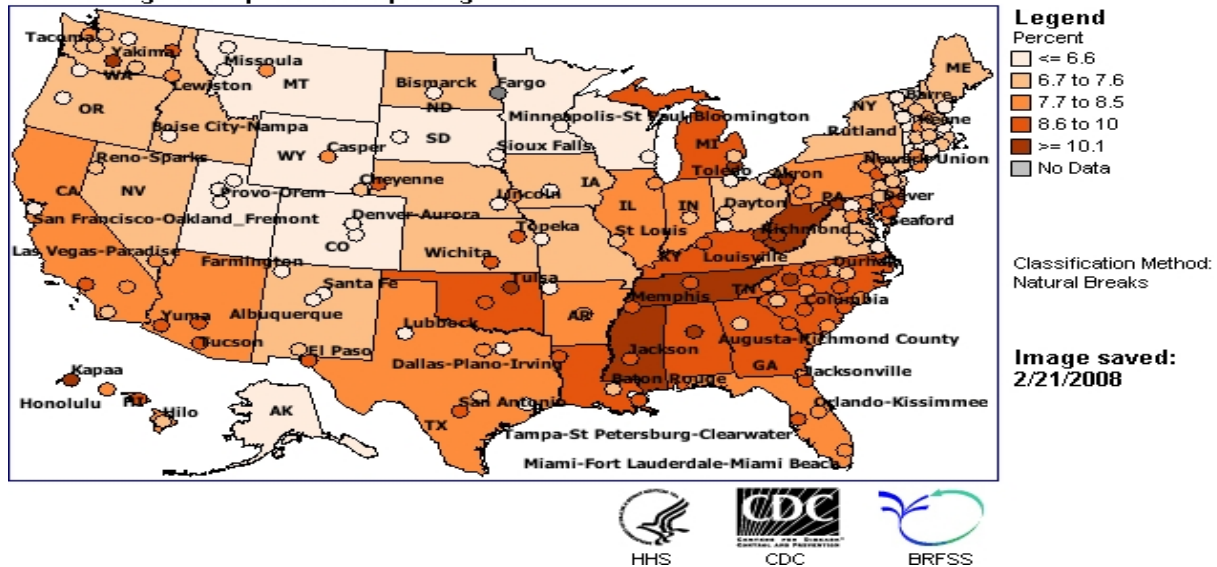
## Insert #21: Map—Diabetes Rates—All U.S. States<sup>69</sup>

## BRFSS Maps

Year - 2006

Have you ever been told by a doctor that you have diabetes?

Percentage of respondents reporting Yes



Quality

In 2001, The Institute of Medicine (IOM) released a disturbing report on the U.S. healthcare system—*Crossing the Quality Chasm*—that called for a new U.S. health system in the 21<sup>st</sup> century.<sup>70</sup>

However, the IOM recognized that “the principles of *Crossing the Quality Chasm* have been difficult to calibrate to rural needs and resources”. So the IOM followed up its *Quality Chasm* report in 2004 with a report more specifically targeted at rural America, *Quality Through Collaboration: The Future of Rural Health Care*.<sup>71</sup> This report recognizes “rural America is home to 20 percent of the nation’s population, but struggles to maintain physicians, hospitals and other critical points of access to health care services”.

*The Future of Rural Health Care* report also provides a picture of a physician who wears many hats while practicing in rural locations like Montana. “...Rural physicians’ scope of practice entails multi-tasking and cross-functioning, as they often run outpatient primary care clinics, care for inpatients at their local hospital, direct local EMS, and care for patients who present in the emergency room.” To complete the picture of what a medical provider (the medical provider could be a physician assistant or nurse practitioner as well as a physician) does in Montana’s rural or frontier healthcare settings, rounding at the local long term care facility should be added to this scope of practice description.

Two healthcare quality organizations focus on adapting the goals contained in *Crossing the Quality Chasm* report to Montana’s rural, frontier environment.

The Medicare Quality Improvement Organization (QIO) serving Montana, Wyoming, Hawaii and Alaska—Mountain-Pacific Quality Health—displays and distributes clinical performance data to Montana’s Critical Access Hospitals on measures for topics such as pneumonia, myocardial infarction and congestive heart failure. In addition, Mountain-Pacific provides a comparison of the clinical performance rates of CAH’s compared to clinical performance rates of Montana’s larger hospitals and promotes other quality initiatives. The QIO has worked with 8 and 9 Critical Access Hospitals gathering and analyzing Rural Organizational Safety Culture (ROSC) survey and Systems Improvement and Organizational Culture Change (SIOCC) data. Both projects dovetail with national *Crossing the Quality Chasm* goals of creating health care systems where “safety is a system property”. As a result of these QIO initiatives, 7 of 9 Montana Critical Access Hospitals are moving forward with Computerized Physician Order Entry (CPOE), bar coding or telehealth systems to improve safety.<sup>72</sup>

Also, every Critical Access Hospital in Montana (that’s 47 of the 61 hospitals in the state) participates in the Montana Rural Healthcare Performance Improvement Network (PIN) that

focuses on data gathering, benchmarking (including multi-rural-state benchmarking), peer grouping and data feedback to improve quality at all CAHs in the state. Over the past two years, the PIN spearheaded a Stroke Initiative with Montana CAHs to present benchmarking data and data feedback to CAHs to improve symptom recognition, timeliness and improved treatment for ischemic and hemorrhagic stroke patients.

Both Mountain-Pacific Quality Health and Montana's Critical Access Hospital Performance Improvement Network coordinate efforts to improve Montana's primarily rural and frontier health care organizations.

### *Access, Health Status and Quality--Looking To The Future Recommendations*

- Facilitate CAH community-member dialogue with a goal of identifying local healthcare system needs and improving access to healthcare and health status (as identified in the Healthy People 2010 objectives). Include public and mental health, EMS and Community Health Center stakeholders in this dialogue. One tool available to facilitate this discussion is CAH participation in Montana's Community Health Services Development (CHSD) project, which utilizes CAH community-member surveys and focus groups.
- Assist CAHs with a marketing template to community members with a message that the "doors don't close at 5PM" at a Critical Access Hospital, that hospital medical services are available 24-hours-per-day, 7-days-per week.
- Continue the Quality Improvement (QI) Showcase plus DON, CEO and Physician Quality Improvement education, networking and "best practice"-sharing.
- Support and expand the CAH Performance Improvement Network (PIN). Consider completing a video presentation focusing on the importance of the quality improvement process and Performance Improvement Network (PIN) to CAHs, what the PIN does and the CAH's role in the PIN.
- Continue cooperative efforts with Mountain-Pacific Quality Health to find resources to support quality improvement initiatives. Raise CAH data reporting and collection participation rates. Consider strategies to reduce health disparities between Native Americans and other Montanans by working with CAHs on or near reservations.
- Assist CAHs in meeting Medicare standards by developing specific action plans and templates to correct CAH survey deficiencies. Tie written action plans and templates to

CAH survey deficiency tags and post on-line for efficient implementation of corrective actions by CAH staff.

- Continue working with State of Montana trauma facility designation staff to assist CAHs in meeting trauma facility standards and improve ER patient care.
- Continue support for identification, evaluation and funding for an all-inclusive health care services model for very small, “frontier” communities.

## Connection & Integration: EMS, Technology & Networks

### EMS—Safety Net for Montana’s Rural Healthcare System

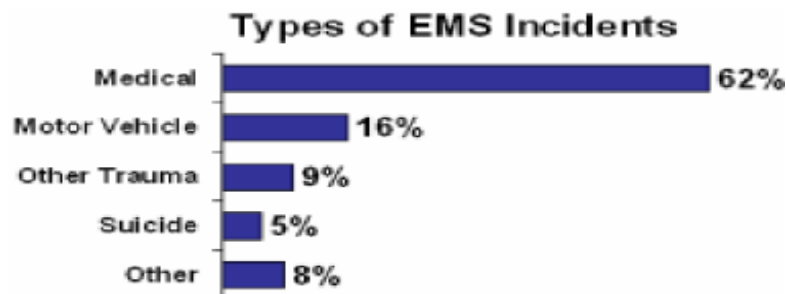
**M**ontana has high unintentional and intentional injury rates, especially between the ages of 1 and 44 years of age (see the blue, green and red boxes in the Table, Insert #22, below). Unintentional Injury is the leading cause of death in Montana for age cohorts 1 through 44.

**Insert #22: Table—5 Leading Causes of Death in Montana, 1999-2005<sup>73</sup>**

<b>5 Leading Causes of Death, Montana, 1999-2005</b>											
Age Groups											
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 124	Unintentional Injury 39	Unintentional Injury 41	Unintentional Injury 55	Unintentional Injury 552	Unintentional Injury 381	Unintentional Injury 466	Malignant Neoplasms 980	Malignant Neoplasms 2,064	Heart Disease 11,298	Heart Disease 13,635
2	SIDS 67	Congenital Anomalies 14	Malignant Neoplasms 13	Suicide 18	Suicide 178	Suicide 191	Malignant Neoplasms 284	Heart Disease 715	Heart Disease 1,340	Malignant Neoplasms 9,790	Malignant Neoplasms 13,258
3	Short Gestation 42	Homicide 10	Homicide 8	Malignant Neoplasms 8	Homicide 53	Malignant Neoplasms 65	Suicide 259	Unintentional Injury 459	Chronic Low. Respiratory Disease 340	Cerebro-vascular 3,634	Chronic Low. Respiratory Disease 3,988
4	Maternal Pregnancy Comp. 32	Influenza & Pneumonia 8	Congenital Anomalies 6	Congenital Anomalies 5	Malignant Neoplasms 46	Homicide 36	Heart Disease 218	Suicide 227	Unintentional Injury 321	Chronic Low. Respiratory Disease 3,551	Cerebro-vascular 3,977
5	Placenta Cord Membranes 25	Heart Disease 7	Influenza & Pneumonia 3	Homicide 5	Heart Disease 10	Heart Disease 32	Liver Disease 97	Liver Disease 202	Diabetes Mellitus 200	Alzheimer's Disease 1,675	Unintentional Injury 3,525

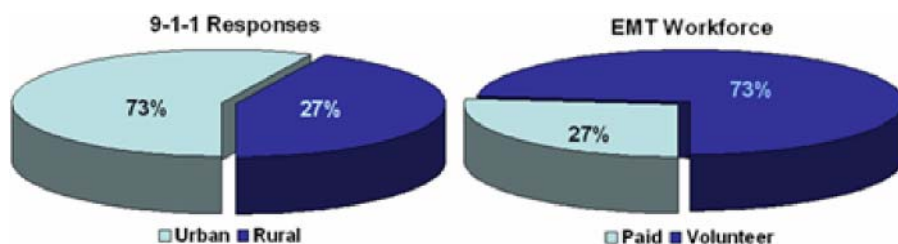
With such high injury death rates for Montana’s young population, its EMS system is an important safety net for the state’s rural population to connect to emergency medical services.

To deal with Montana’s high injury and death rates, Montana has 107 non-transporting units, 131 ground transporting ambulance services, 6 rotor-wing flight services and 7 fixed wing flight services.<sup>74</sup> In 2006, EMS services responded to over 72,000 9-1-1 calls; the majority of calls being medical incidents in a patient’s home (see the Chart, Insert #23 “Types of EMS Incidents” below)<sup>75</sup>:



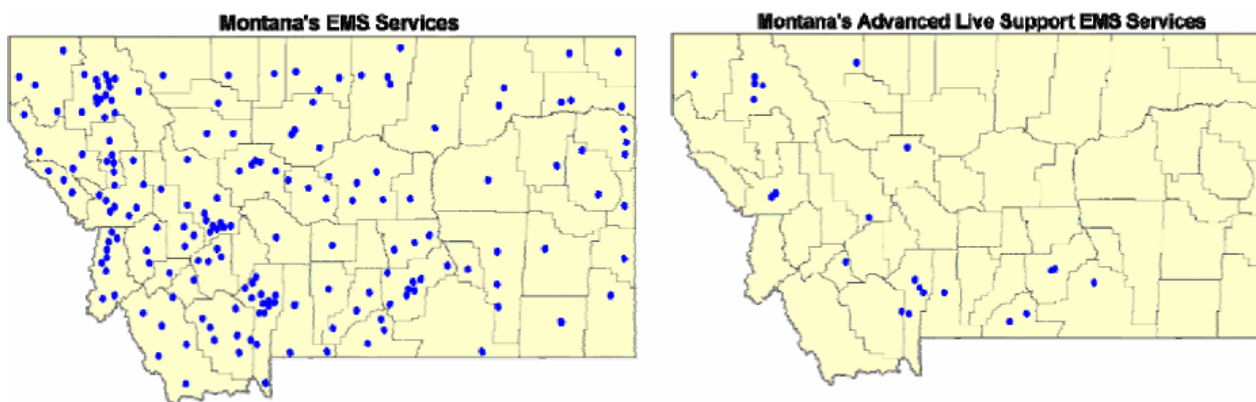
While the majority of Montana’s EMS calls occurred in somewhat more “urban” areas of the state (although, as reported earlier, Montana is a very rural state) which can provide advanced life support services (73%), the more isolated “frontier, rural” areas of the state are provided EMS services by a volunteer EMT workforce.<sup>76</sup>

**Insert #24: 9-1-1 Responses & EMT Workforce**



As the charts in Insert #24 above show, the majority (73%) of services in “rural” areas of Montana are staffed by volunteers. While some of these “rural,” volunteer services provide Advanced Life Support (ALS) skills, full-time access to ALS emergency services are principally available only in “urban” areas of Montana (see the maps in Insert #25 below).

**Insert #25: Types Of EMS Units In Montana<sup>77</sup>**



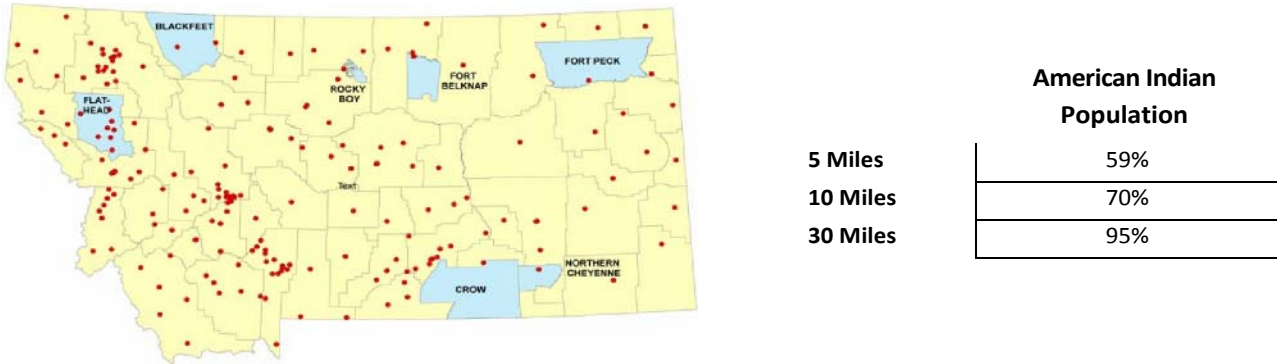
The **charts in Insert #26 below** illustrate the disparity between access to EMS medical care between Montana’s “urban” and “rural” areas, especially access to EMS advanced life support.

**Proximity of Montana’s Population to EMS – Urban vs. Rural<sup>78</sup>**

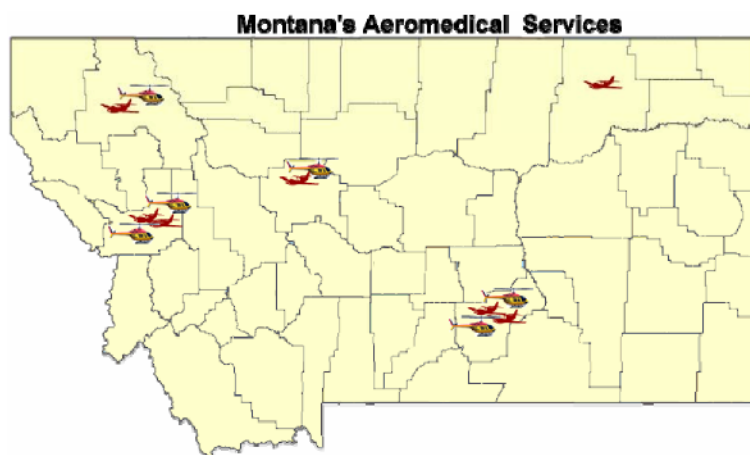
Type of EMS Unit	Within 5 miles of an EMS unit		Within 10 miles of an EMS unit		Within 30 miles of an EMS unit	
	Urban	Rural	Urban	Rural	Urban	Rural
All 9-1-1 Responding Units	97%	72%	100%	85%	100%	99%
Limited ALS Care Units	62%	50%	77%	66%	100%	92%
ALS Care 24/7 Units	83%	18%	93%	27%	95%	55%

Access to EMS medical care is even more limited for Montana’s Native American population (see the Map and Chart—Insert #27 below):

**Proximity of Montana’s American Indian Population to EMS<sup>79</sup>**



In addition to its 131 ground-transporting ambulance services, Montana is home to 13 air ambulance services—7 fixed-wing and 6 rotor-wing (or helicopter) services.<sup>80</sup> All of Montana’s air ambulance services are located in the larger Montana communities of Billings, Great Falls, Missoula and Kalispell except one fixed-wing air ambulance service headquartered in Glasgow, which serves the frontier population of northeast Montana. **See Map—Insert #28<sup>81</sup> below** showing the geographic distribution of Montana’s air ambulance services.



Nationally, 40% of all ambulance patients are over the age of 75.<sup>82</sup> Since Montana is projected to become the 3<sup>rd</sup> most aged state in the U.S. by 2025, demand for EMS services will increase significantly. Considering Montana’s high accident, injury and death rates coupled with its rapidly aging population, demand for EMS services will escalate in the years ahead.

## Technology

### Telehealth

In the *Quality Through Collaboration: The Future of Rural Health* report, telehealth is defined as a broad set of applications to support long-distance clinical care, consumer and professional health-related education, public health and electronic health records.

Montana was an “early adopter” of telehealth technology to bridge the distance barrier and provide access to medical care for rural populations. The Eastern Montana Telemedicine Network, a hub and spoke interactive audio-video telemedicine network centered at the Billings Clinic, began operation in 1992—one of the first telemedicine networks in the nation. Today, 4 additional networks—the Fiber Optic Rural TeleHealth (FORTH) network in northeast Montana,

the REACH Montana network at Benefis Healthcare in Great Falls, the Partners in Health network at St. Vincent Hospital in Billings and Videolink of St. Peters Hospital in Helena—tie many of Montana’s rural communities to tertiary medical centers. However, most telemedicine sites are located in eastern and central Montana. There are coverage gaps in western Montana due to the lack of well developed telehealth/telemedicine networks. And even in eastern and central Montana, there are a number of very small frontier communities with Critical Access Hospitals that do not have telemedicine sites.<sup>83</sup>

### *Information Technology*

According to *A Roadmap for Adoption of Health Information Technology in Rural Communities*, advances in Information Technology also hold great promise for helping rural residents and medical providers overcome some of the problems of distance and personnel shortages.<sup>84</sup>

The following existing and emerging technologies provide Montana’s rural healthcare providers with linkages to patients and larger health care systems:

- ❖ Remote monitoring of patient vital signs
- ❖ Video consults with off-site providers (traditional telemedicine application)
- ❖ CR & PACS teleradiology systems
- ❖ Remote pharmacy applications
- ❖ Continuing Medical Education and Patient Education
- ❖ Electronic Health Record (EHR) applications
- ❖ EMS Pre-Hospital Data System
- ❖ Surgical procedures using robotic assistance

Montana’s communities are in various stages of examining and adopting these technologies. Some very small frontier communities don’t have access to telemedicine systems while many (but not all) rural hospitals have installed Computed Radiography (CR) and Picture Archiving and Communication System teleradiology capability. A few towns without pharmacists are using remote pharmacy links. And larger rural hospitals are in the early stages of implementing Electronic Health Record (EHR) systems. One urban hospital in Montana has demonstrated the possibility of robotically-assisted surgery.

As the *Quality Through Collaboration* rural health report says, Information Technology plays a crucial role in ensuring quality of care in rural areas like Montana. Expensive EHR systems, electronic prescribing and drug interaction monitoring systems, bar coding systems for

managing medications and bedside charting and patient monitoring systems are all much-needed tools to provide high-quality care in Montana's rural communities.

## Networks

Partnering for survival is a centuries-old characteristic of frontier rural people and Montana's healthcare organizations are no exception. Although Montana's rural healthcare system remains fragmented like the rest of rural America, there are many healthcare networks within the state. Finding common ground, cooperating and working on improving the efficiency and quality of medical care to rural Montanans are important goals that are facilitated through healthcare networks and statewide organizations.

Here is a partial list (there are probably more):

- ❖ Critical Access Hospital (CAH) Performance Improvement Network (PIN)
- ❖ Montana Health Network (MHN)
- ❖ Northcentral Montana Healthcare Alliance (NMHA)
- ❖ Billings Clinic Affiliate network
- ❖ Sisters of Charity of Leavenworth hospitals in Montana
- ❖ MHA...An Association of Healthcare Providers (MHA)
- ❖ Montana Primary Care Association (MPCA)
- ❖ Montana Healthcare Telecommunications Alliance (MHTA)
- ❖ Monida Health Network
- ❖ Providence Health & Services hospitals in Montana
- ❖ Regional Trauma Advisory Councils (RTAC)
- ❖ Health Information Exchange of Montana (HIEM)

By joining together and working on Montana's rural healthcare challenges, networks facilitate solutions and better patient care for all Montanans.

As mentioned earlier (see page 9), Montana pioneered the CAH concept with a State-of-Montana only Medical Assistance Facility (MAF) model in the 1980s. In the 1990s, the MAF model went national and grew to include over 1,200 CAHs across the U.S. by 2007. Now, a few of Montana's larger CAHs are thinking about converting back to PPS hospital status because their inpatient census occasionally includes more than the 25 beds allowed under CAH. The life cycle for CAHs continues.

## *Connection and Integration: EMS, Technology and Networks—Looking To The Future Recommendations*

- Consider hosting a rural technology showcase inviting expert (non-vendor) speakers to highlight practical, cost-effective technology solutions for Montana’s frontier and rural CAHs.
- Assist CAHs with education and planning for evolving regional and statewide Health Information Technology (HIT) integration. Bring together Montana’s healthcare stakeholders to discuss and coordinate HIT efforts. HIT stakeholders may include CAH, clinic, pharmacy, nursing home and home health EHR systems; regional teleradiology and telehealth networks as well as the statewide pre-hospital EMS data system and trauma registry.
- Identify factors that may cause a CAH to switch back to PPS hospital status. Consider possible technical assistance, if needed, to the few hospitals making this switch in future years.
- Encourage basic connectivity/networking between very small, frontier CAH’s and larger CAH’s as well as tertiary medical centers.
- Consider partnering with EMS/CIT to survey EMS providers on what factors it takes to recruit and retain an adequate EMS workforce in Montana’s CAH communities. Consider partnering with EMS/CIT to develop long-term EMS workforce solutions for Montana’s CAH communities.
- Consider helping EMS providers in CAH communities obtain reliable, diverse and up-to-date distance learning opportunities, including geriatric-specific training.
- Support and encourage migration away from a volunteer EMS provider system toward a system which is integrated with CAHs and includes paramedics.

# FOOTNOTES

<sup>1</sup> From Wikipedia, “Montana Geography” entry. See <http://en.wikipedia.org/wiki/Montana>

<sup>2</sup> Map of Montana overlaid on map of U.S. from Mountain-Pacific Quality Health, Helena, Montana.

<sup>3</sup> See “List of U.S. States By Population” from the 2007 U.S. Census Estimates included in [http://en.wikipedia.org/wiki/List\\_of\\_U.S.\\_states\\_by\\_population](http://en.wikipedia.org/wiki/List_of_U.S._states_by_population). Montana ranks 44<sup>th</sup> on this list with a population of 957,861.

<sup>4</sup> See “List of U.S. States By Population Density” from the 2000 U.S. Census Estimates included in [http://en.wikipedia.org/wiki/List\\_of\\_U.S.\\_states\\_by\\_population\\_density](http://en.wikipedia.org/wiki/List_of_U.S._states_by_population_density). Montana ranks 48<sup>th</sup> (third lowest) on this list. Only the states of Wyoming and Alaska rank lower than Montana this list. Montana’s estimated population of 957,861 in 2007 (see footnote 2) divided by 145,552 square miles results in a population density of 6.6 people per square mile.

<sup>5</sup> Population density definitions of urban, rural and frontier developed by the U.S. Department of Health and Human Services, Bureau of Primary Health Care in 1986. See <http://nris.mt.gov/epht/definition.aspx#PopDensity>

<sup>6</sup> The Pennsylvania definition of rural is found on page 2, *Status Check IV, Pennsylvania Rural Health Care* published by the Pennsylvania Rural Health Association, Harrisburg, Pennsylvania, in August 2005.

<sup>7</sup> The Arizona definition of rural is found on page 13, *Arizona Rural Health 2005-2007* published by the Southwest Border Rural Health Research Center at the University of Arizona, Tuscon, Arizona, in December 2004.

<sup>8</sup> See [http://en.wikipedia.org/wiki/Demographics\\_of\\_the\\_United\\_States](http://en.wikipedia.org/wiki/Demographics_of_the_United_States) for the data that 80.6% of the U.S. population is urban. Since Yellowstone County is the only county in Montana classified as urban and it had an estimated population of 138,213 in 2006 (latest county data available—see <http://www.census.gov/popest/counties/CO-EST2006-01.html>) and Montana’s estimated 2006 population was 944,632 (see <http://www.census.gov/popest/states/NST-ann-est2006.html>) only 15% (138,213 divided by 944,632) of Montana’s population lives in an urban setting, the remaining 85% living in rural or frontier counties.

<sup>9</sup> The 2006 Yellowstone County census of 138,213 (see footnote 7) divided by the number of square miles in Yellowstone County (2,635—from 2004 Montana DPHHS Yellowstone County health profile/see <http://nris.mt.gov/epht/demo.aspx?county+30000&year=2004>) yields a population density for Yellowstone County of 52 people per square mile.

<sup>10</sup> Table built with table from the Montana County Health Profiles. See <http://nris.mt.gov/epht/hra.aspx?county+30000&year=2004>

<sup>11</sup> “Rural-Urban Commuting Area Codes (Version 2.0): Travel Distance and Time, Remote, Isolated and Frontier”, WWAMI Rural Health Research Center, University of Washington, Seattle, Washington. [http://depts.washington.edu/uwruca/travel\\_dist.html](http://depts.washington.edu/uwruca/travel_dist.html). Article Updated 05.25.06

<sup>12</sup> 2000 to 2030 census projections and over 65 data from 2005 Interim State Population Projections, Population Division, U.S. Census Bureau.

<sup>13</sup> <http://ceic.mt.gov/demographics.asp>

<sup>14</sup> “Personalized healthcare 2010—Are you ready for information-based medicine?”, IBM Consulting Services Executive brief. 2004.

<sup>15</sup> See Table 5: Population under age 18 and 65 and older: 2000, 2010, & 2030 from State Interim Population Projections by Age and Sex: 2004-2030. U.S. Census Bureau.

<sup>16</sup> See [http://ceic.mt.gov/graphics/Data\\_Maps/PopProjPercentChg2030\(06\)\\_categories.pdf](http://ceic.mt.gov/graphics/Data_Maps/PopProjPercentChg2030(06)_categories.pdf)

- 
- <sup>17</sup> Income, Poverty & Health Insurance Data from Montana Dept. of Commerce Census and Economic Information Center, August 28, 2007. <http://ceic.mt.gov/demographics.asp>
- <sup>18</sup> *Ibid.*
- <sup>19</sup> *Ibid.*
- <sup>20</sup> “Final Report: Household Survey and Employer Findings About Health Insurance Coverage in Montana”, Steve Seninger, Ph.D., Principal Investigator and Director of Economic Analysis; Bureau of Business and Economic Research; University of Montana; Missoula, Montana. February 2004.
- <sup>21</sup> See Footnote 18
- <sup>22</sup> “Health Insurance Coverage Status” map from Rural Assistance Center, Health & Human Services Information for Rural America. <http://www.raconline.org/maps/mapfiles/insurance.jpg>
- <sup>23</sup> MAF and CAH information and history taken from “Montana’s Critical Access Hospital Program: Keeping the Doors Open for Rural Healthcare”, December *Authority Review*, newsletter for the Montana Facility Finance Authority.
- <sup>24</sup> *Health Care in Montana’s Economy* published by MHA...An Association of Healthcare Providers, 2007. Original 2005 data from Research and Analysis Bureau, Montana Dept. of Labor Industry. Also see *Montana Economy at a Glance: The Economic Impact of Montana’s Healthcare Industries* by Economist Brad Eldredge, 2005.
- <sup>25</sup> *Ibid.*
- <sup>26</sup> Number of hospitals, Rural Health Clinics, nursing homes, tribal health facilities and assisted living facilities from Montana Department of Public Health and Human Services County Health Profiles <http://nris.mt.gov/epht/hra.aspx?county=30000&year=2004>. Number of CHC’s from Marge Levine, Data and Information Manager, Montana Primary Care Association. Number of CAHs from Kip Smith, Director/Montana Critical Access Hospital program and FLEX grant coordinator.
- <sup>27</sup> There are no hospitals in Powder River, Treasure, Jefferson, Judith Basin, Wibaux, Golden Valley or Petroleum counties.
- <sup>28</sup> Map of Montana Hospitals from Mountain-Pacific Quality Health, Helena, Montana.
- <sup>29</sup> Map from Kip Smith, Director/MHREF & Montana CAH Program Coordinator
- <sup>30</sup> See Footnote 27
- <sup>31</sup> Bed Capacity table built with data from County Health Profiles (see link to County Health Profiles in Footnote 10)
- <sup>32</sup> See “Beds per 1,000 population” table, The Henry J. Kaiser Family Foundation. <http://www.statehealthfacts.org/comparetable.jsp?ind=396&cat=8&sub=95&yr=1&typ=1&sort=1238>
- <sup>33</sup> See “Admissions per 1,000 population” table, The Henry J. Kaiser Family Foundation. <http://www.statehealthfacts.org/comparetable.jsp?ind=398&cat=8&sub=95&yr=1&typ=1&sort=1238>
- <sup>34</sup> See American Hospital Directory [www.ahd.com/states/hospital\\_NY.html](http://www.ahd.com/states/hospital_NY.html)
- <sup>35</sup> See “Total Number of Certified Nursing Facilities, 2006”, The Henry J. Kaiser Family Foundation. <http://statehealthfacts.org/comparetable.jsp?ind=411&cat=8&sub=97&yr=17&typ=1&sort=n&o=d>
- <sup>36</sup> See “Total Number of Residents in Certified Nursing Facilities, 2006”, The Henry J. Kaiser Family foundation.

---

<http://statehealthfacts.org/comparetable.jsp?ind=408&cat=8&sub=97&yr=17&typ=1&o=d&sort=n>

<sup>37</sup> From 2004 Montana County Health Profiles. See <http://nris.mt.gov/epht/hra.aspx?county=30000&year=2004>. The eight counties without home health services are Big Horn, Carter, Golden Valley, Musselshell, Petroleum, Treasure, Valley and Wheatland.

<sup>38</sup> From David Espeland, CEO, Fallon Medical Complex, Baker, Montana.

<sup>39</sup> HPSA Primary Care data and map from Montana DPHHS Primary Care Office, November, 2007. See <http://www.dphhs.mt.gov/PHSD/Primary-Care/pdf/HPSAPC1107.pdf> for Primary Care HPSA map.

<sup>40</sup> From "Healthcare Workforce Demand in Montana: A Report by the Montana Healthcare Workforce Advisory Committee" prepared by the Montana Office of Rural Health/Area Health Education Center. 5/8/2007.

<sup>41</sup> See <http://bphr.hrsa.gov/shortage/hpsaguidement.htm> for Mental Health HPSA designation criteria.

<sup>42</sup> See <http://www.dphhs.mt.gov/PHSD/Primary-Care/pdf/MentalHPSA1107.pdf> for Mental HPSA map.

<sup>43</sup> From *Trustee Magazine*, American Hospital Association, February, 2008.

<sup>44</sup> From "Workforce Montana" report by Western Interstate Commission for Higher Education (WICHE). May 2005.

<sup>45</sup> "Projected Supply, Demand and Shortages of Registered Nurses: 2000-2020" by HRSA Bureau of Health Professions, July 2002.

<sup>46</sup> *Ibid.*

<sup>47</sup> Table built with data from "2007 Workforce Staffing Survey" by Roberta Yager. Published by MHA...An Association of Healthcare Providers.

<sup>48</sup> For data in this paragraph see "The Future Supply of Long-Term Care Workers in Relation to the Aging Baby Boom Generation: A Report To Congress" by the Department of Health and Human Service's Office of the Assistant Secretary for Planning and Evaluation (ASPE), May 14, 2003, and "LPN Facts" from the American Association of Community Colleges

<sup>49</sup> Data and table from "Healthcare Workforce Demand in Montana...", May 8, 2007. See Footnote 40.

<sup>50</sup> Data from "Workforce Montana" report, WICHE, May, 2005. See Footnote 43.

<sup>51</sup> Data from "A Report to Congress: The Pharmacist Workforce: A Study of the Supply and Demand For Pharmacists" by the Department of Health and Human Services Health Resources and Services Administration Bureau of Health Professions, December, 2000. See <http://www.bhpr.hrsa.gov/healthworkforce/reports/pharmacist.htm>. Data also from "Workforce Montana" report, WICHE, May, 2005. See Footnote 43.

<sup>52</sup> From "Healthcare Workforce Demand in Montana...." report, May 8, 2007. See Footnote 40.

<sup>53</sup> March 2008 Dental HPSA map from Marge Levine, Data and Information Manager, Montana Primary Care Association

<sup>54</sup> See "Table No. 163, Active Physicians (2005 Data)" from Census Bureau Statistical Abstract of the United States. Numbers of primary care physicians and mid-level providers from Montana DPHHS website <http://nris.mt.gov/epht/demo.aspx?county=30000&yr=2004>

---

<sup>55</sup> See “Physician work force estimates far apart”, *American Medical News* published by the American Medical Association, June 20, 2005. <http://www.ama-assn.org/amednews/site/free/prsa0620.htm>. Also see “Physician Recruitment Woes...Not Expected To Ease Up Soon”, Cejka Search firm. [http://www.cejkasearch.com/news/physician\\_recruitment\\_woes\\_of\\_medical\\_groups.htm](http://www.cejkasearch.com/news/physician_recruitment_woes_of_medical_groups.htm)

<sup>56</sup> From Larry Putnam, retired CEO, Phillips County Medical Center, Malta, Montana

<sup>57</sup> Senator Conrad Burns, U.S. Senate Floor, December 8, 2004

<sup>58</sup> 2005 BRFSS Data: State Added Question, “Travel Access To Health Provider”

<sup>59</sup> *Ibid.*

<sup>60</sup> 2004 BRFSS Data

<sup>61</sup> *Ibid.*

<sup>62</sup> From “Deaths, Percent of Total Deaths and Death Rates for the 15 Leading Causes of Death: United States and Each State, 2004”, National Center for Health Statistics Data Warehouse. See [http://www.cdc.gov/nchs/data/dvs/LCWK9\\_2004.pdf](http://www.cdc.gov/nchs/data/dvs/LCWK9_2004.pdf)

<sup>63</sup> 2004 BRFSS Data

<sup>64</sup> *Ibid.*

<sup>65</sup> See BRFSS State Prevalence inquiry system at <http://apps.nccd.cdc.gov/brfss>

<sup>66</sup> See BRFSS Interactive Mapping at <http://www.cdc.gov/brfss/maps>

<sup>67</sup> Montana and U.S. Rates on this table from Montana and national BRFSS data, except U.S. high blood pressure rate is from “1999-2002 National Health & Nutrition & Examination Survey” by CDC. See <http://www.cdc.gov/nchs/about/major/nhaves/datatable/ink.htm>. U.S. diabetes rate is from “Diabetes 1990-2005”. See [www.cbsnews.com/stories/2007/06/25/health/webmd/main2974872.shtml](http://www.cbsnews.com/stories/2007/06/25/health/webmd/main2974872.shtml). U.S. smoking rate is from “State Specific Prevalence of Current Cigarette Smoking Among Adults, 2003” by CDC. Health People 2010 Targets are from “Healthy People 2010: National Health Promotion and Disease Prevention Objectives”, Washington D.C.: U.S. Public Health Service. 2000.

<sup>68</sup> See BRFSS Interactive Mapping at <http://www.cdc.gov/brfss/maps>

<sup>69</sup> *Ibid.*

<sup>70</sup> *Crossing The Quality Chasm: A New Health System for the 21<sup>st</sup> Century*, Institute of Medicine (IOM), Washington D.C., March 2001. See <http://www.iom.edu/CMS/8089/5432/27184.aspx>

<sup>71</sup> *Quality Through Collaboration: The Future of Rural Healthcare*, Committee on the Future of Rural Health Care, Board on Health Care Services, Institute of Medicine, 2005. See [http://www.nap.edu/catalog.php?record\\_id=11140#toc](http://www.nap.edu/catalog.php?record_id=11140#toc)

<sup>72</sup> From ROSC and SIOCC data from Mountain-Pacific Quality Health, Helena, Montana.

<sup>73</sup> 2005 Montana BRFSS data. Table from Montana DPHHS/EMS & Trauma Systems.

<sup>74</sup> From Montana DPHHS/EMS & Trauma Systems.

<sup>75</sup> Data and Insert/Chart #23 from Montana DPHHS/EMS & Trauma Systems.

<sup>76</sup> Data and Chart/Insert #24 from Montana DPHHS/EMS & Trauma Systems.

---

<sup>77</sup> Maps/Insert #25 from Montana DPHHS/EMS & Trauma Systems.

<sup>78</sup> Data & Chart/Insert #26 from Montana DPHHS/EMS & Trauma Systems.

<sup>79</sup> Map & Chart/Insert #27 from Montana DPHHS/EMS & Trauma Systems.

<sup>80</sup> Data from Montana DPHHS/EMS & Trauma Systems.

<sup>81</sup> Map/Insert #28 from Montana DPHHS/EMS & Trauma Systems.

<sup>82</sup> *Hospital-Based Emergency Care At The Breaking Point*, Institute of Medicine, 2007. Volume 3 of 4 in a series titled, “Future of Emergency Care”.

<sup>83</sup> From Montana Healthcare Telecommunications Alliance.

<sup>84</sup> *A Roadmap for Adoption of Health Information Technology in Rural Communities* by Schoenman et. al. at the NORC Walsh Center for Rural Health Analysis, Bethesda, Maryland. Also see *Quality Through Collaboration: The Future of Rural Health Care* (see Footnote 70).

---

# ADDITIONAL REFERENCES

1. "Telehealth In Montana" by John Zauher. Montana Healthcare Telecommunications Alliance. [www.mansfieldfdn.org/programs/program\\_pdfs/zauher2.pdf](http://www.mansfieldfdn.org/programs/program_pdfs/zauher2.pdf)
2. "Montana Health Information Technology Initiatives" by Frank Newman, Associate Director, Montana Office of Rural Health. Bozeman, Montana. 2007.
3. "EMS Workforce for the 21<sup>st</sup> Century: A National Assessment". (Draft Unpublished Study). July 2007
4. "Future of Emergency Care", a 4-Volume Set published by the Institute of Medicine:  
Volume 1: *Dissemination Workshop Summaries*  
Volume 2: *Emergency Medical Services At The Crossroads*  
Volume 3: *Hospital-Based Emergency Care At The Breaking Point*  
Volume 4: *Emergency Care For Children: Growing Pains*
5. *Mental Health: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Office of the Surgeon General. 1999.  
<http://mentalhealth.samhsa.gov/cmhs/surgeongeneral/surgeongenerallrpt.asp>
6. "Rosebud County Montana Community Health Services Development Survey Report" conducted by Rosebud Health Center, Forsyth, Montana, in cooperation with The Montana Office of Rural Health & the Rural Health Resource Center. Fall 2007.
7. "National and State Healthcare Workforce Sources and Summary of Data and Projections" prepared by the Montana Office of Rural Health/Area Health Education Center. Angela Chou, Field Research Student. June 20, 2006.
8. "Healthcare Workforce Demand In Montana: A Report by the Montana Healthcare Workforce Advisory Committee", May 2007.
9. American Hospital Association "Workforce" website  
[http://www.aha.org/aha\\_app/issues/Workforce/index.jsp](http://www.aha.org/aha_app/issues/Workforce/index.jsp)
10. "Improving Montana's Mental Health System—Final Report" Prepared by Technical Assistance Collaborative, Inc.; January 15, 2001; 176 pages.  
[www.dphhs.mt.gov/amdd/services/tacfinalreport.pdf](http://www.dphhs.mt.gov/amdd/services/tacfinalreport.pdf)
11. "Montana Youth Risk Behavior Survey Report, 2005." 83 pages. Montana Office of Public Instruction website. [www.eric.ed.gov/ERICWebPortal](http://www.eric.ed.gov/ERICWebPortal)
12. *Final Report: From Isolation To Integration—Recommendations To Improve Quality in Long-Term Care*. National Commission for Quality Long-Term Care. Washington, D.C. December 3, 2007. [www.ncqltc.org](http://www.ncqltc.org)
13. *Stroke* article in "Compdata Monthly Monitor—Montana"; August, 2004.
14. "Health Care Spending and Costs" by Steve Seninger. *Montana Business Quarterly*. Spring, 2003.
15. [www.statehealthfacts.org](http://www.statehealthfacts.org) The Henry J. Kaiser Family Foundation
16. "America's Health Rankings" United Health Fund. [www.unitedhealth.org](http://www.unitedhealth.org)
17. "Health Care in Montana: A Growing Industry" by Rudyard Goode. *Montana Business Quarterly*. December 22, 1989.

- 
18. "Turning On The Off-Season: Opportunities For Progress In The Yellowstone-Teton Region," Yellowstone Business Partnership, April, 2007. Authors: Michelle L. Archie, Howard D. Terry and Larry D. Swanson, PhD. The O'Connor Center for the Rocky Mountain West at the University of Montana.

---

## **Montana's CAH/FLEX Grant Program**

### **Montana DPHHS, MHREF and Author Descriptions**

Montana's Critical Access Hospital/FLEX Grant program is administered through a strategic "joint venture" of the Montana Department of Public Health and Human Services (DPHHS) and the Montana Health Research and Education Foundation (MHREF), a division of the state hospital association. This innovative partnership is a continuation of a 21-year relationship initiated during the tenure of the Montana Medical Assistance Facility (MAF) Demonstration project – a prototype for the current, national Critical Access Hospital model.

DPHHS contracts with MHREF to provide oversight, coordination and financial accountability for all FLEX grant activities. DPHHS retains responsibility to monitor and evaluate progress and effectiveness of all grant activities based on measurable outcomes included in FLEX grant objectives. Montana's FLEX Program in turn, contracted with Larry Putnam, Eagle Healthcare Consulting, as the primary author of this Montana State Rural Health Plan with guidance and feedback from the SRHP Task Force.

Mr. Putnam holds a Master's Degree in Business Administration (MBA) from the University of Montana and has over 25 years of rural healthcare management experience. In 2007, he retired as CEO of Phillips County Medical Center in Malta, Montana, after serving as CEO for 14 years. This isolated, "frontier" healthcare facility has 76 CAH, long-term care and assisted living beds as well as a Rural Health Clinic (RHC). During his tenure as CEO, the Medical Center completed construction of a new hospital and clinic. He also led a successful effort to purchase and transfer out-of-state ownership of a local, long-term care facility to the Medical Center. He also served on the MHA, MHN and NMHA boards of directors. In addition, he was appointed by Montana's Governor and currently serves on the Montana Facility Finance Authority board of directors. After retirement, Mr. Putnam established Eagle Healthcare Consulting and recently completed an assignment as Interim CEO at Pioneer Medical Center, a CAH located in Big Timber, Montana.